The Builder.

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The Architectural Copyright Question.

THAT a French lawyer should have taken the trouble to come over here and read a paper to show us how we may obtain a legal basis for the protection of our copyright in architectural design is an interesting event in the architectural world; and English architects must feel grateful to M. Harmand for an effort which can only have originated in his interest in assisting what he regards as a movement in favour of abstract right and justice. But we think the subject is complicated with more difficulties than M. Harmand has quite recognised.

Some of these difficulties are perhaps peculiar to our own country. There are two reasons why it should be much easier and more natural for a Frenchman to look on architectural copyright as a feasible project, than for an Englishman. One is that the art or profession of architecture (which we will) is held in much higher respect in France than in England, both by the public and by the legal mind. In France it would be a presumption in a man's favour that he was an architect, because there is a distinct perception that architectural design is a noble and a difficult calling; and an architect wishing to defend his rights in a design in a court of law would probably have the predominating feeling of the court on his side; he would at all events be regarded as one whose claims it was worth while to consider seriously, and there would be rather a desire to defend them than otherwise. In an English court of law it is just the reverse; an architect is there regarded as a kind of *lusus naturæ*, or at best as a personage of little importance, whose art no one particularly wants, and whose feelings and opinions in regard to it are mere eccentricities which the legal mind neither comprehends nor cares to comprehend. In France, again, the academical view of architectural design, which regards the design as the personal and individual work of its author, expressed in a series of highly-elaborated and learned drawings, is more generally and decidedly accepted than in England. There are a certain number of architects in England, of whom and of whose views M. Harmand has probably never heard, who would maintain that the building is much more the work of the craftsman than of the architect, and that a copyright to protect the architect's property in his design would be an attempt to protect what did not or ought not to exist. We consider this a mistake, and that architecture, under the circumstances of modern life, must be regarded as a personal art; but the contrary opinion is one which could not be passed over, and would have to be reckoned with. M. Harmand referred to a period when architects were in the habit of putting their names on the buildings they erected; but that was only in the period of Classic antiquity; and it is noticeable that the French, whose architectural sympathies are so much more Classic than Gothic, occasionally do the same thing now. If architecture were practised now as it was in the mediæval period, a copyright Act in regard to it would be out of the question. We do not think it can be so practised now; but the point can hardly be omitted in considering the subject.

Leaving aside what may be called geographical influences, and coming to the broad view of the question, it is evident that the difficulty of placing architecture on the same footing with other arts in regard to copyright arises from the fact that architecture is so intimately connected with utilitarian work that it is often difficult to say where that ends and the artistic work begins. This was evidently recognised in the judgment delivered by the Tribunal de Première Instance de la Seine, quoted by M. Harmand; where the Judges held that "copyright is granted to every work that comes within the sphere of art, and that the work of an architect in some cases, according to its scope of thought and the merit of its execution, may be and ought to be considered as a work of art." This cautiously expressed judgment is perfectly true, and every one will subscribe to it. But just imagine what a basis for litigation is afforded by such a sentence. Who is to decide, and what evidence is to prove, whether any particular building comes within that definition or not? Any attempts to argue a legal case on such a basis would be like the arguments of Milton's rebel angels, which—

> "Found no end, in wandering mazes lost."

Like a patent, a copyright must be for something definite and definable. A patent is a kind of copyright; and a patent can be had for a new method of combining materials to form a floor or a roof, or even for a new artificial material; but not for a general structural principle, since that is the property alike of all thinking minds that are able to grasp principles of construction. Suppose the case of an engineer who had never heard of the principle of cantilever construction, coming for the first time across an example of a large and successful cantilever bridge—could any one prevent him, under any imaginable law, from copying it in a new structure? The principle had always existed; it was not confined to any special material; it is the property of the human intellect at large. Then what would be necessary to bring it within the scope of the judgment just quoted? The existence of some ornamental rivet-heads, for example, which he must not copy, though he may copy the whole structure? That would be admitted by every one to be a ludicrous result, and yet it is an example of what might happen under the application of the judgment of the French Tribunal above cited.

An architect's drawings, as drawings, may no doubt be, under the existing law, the subject of copyright, like other drawings; and it is a rather curious fact, among those mentioned in M. Harmand's paper, that in Germany the architect's copyright in his design is protected as long as it is only in the shape of a drawing, but he loses this if he erects the design as a building. This seems at first blush absurd no doubt; but it probably arose from a perception of the difficulty of applying laws of artistic copyright to buildings, owing to the narrow and indefinable line which separates mere construction from art.

Similarly, the successful arrangement of a plan of a special type, which was a few years ago attempted in this country to be made the subject of a copyright, is, like the cantilever principle of construction, too vague and universally accessible a thing to be made the subject of legislation. It is not new material or a new method of constructing anything; it is simply an arrangement. And it is notorious that a young architect who is going in for a competition for any particular class of building in most cases com-

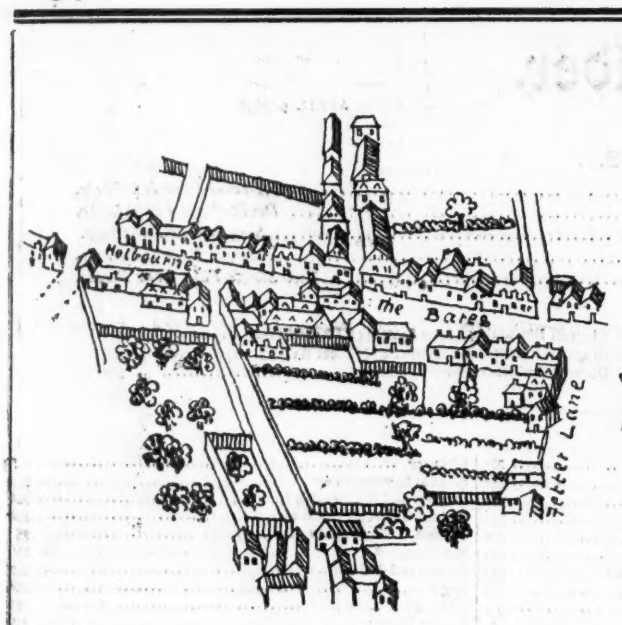


Fig. 1.—Southampton House and Garden and Staple Inn (Aggas's Map, 1561-1576).

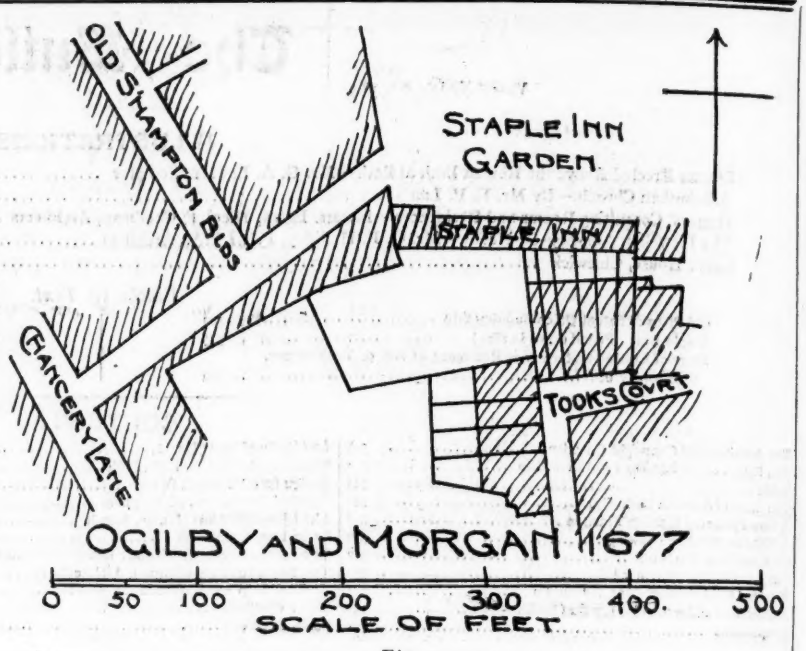


Fig. 2.

mences his work by studying the plans of successful buildings of the same type by more experienced architects, and embodying the results, or some of them, in his own plan. It would hardly be a good thing for architecture, hardly for the good of the public either, if the liberty to do this were curtailed by a Copyright Act.

The one case in which perhaps an architectural Copyright Act might be made to work without leading to confusion of ideas would be that of direct and complete imitation or rebuilding of another man's building. This applies, as the President observed on Monday evening, with special force to small buildings like cottages or villas for an estate, where the same plan and design exactly may be, and sometimes is, reproduced over and over again. Leaving aside the question as to how far the building was an object of art—a question almost impossible for any tribunal to decide, it can at least be decided when a building is a precise imitation of another, or when it comes so near being that as to be what in other cases is called a "colourable imitation." A legal tribunal cannot decide on the question of art, but it would be within its power to decide on the question of imitation. It may be possible thus to prevent a single set of drawings by an architect being used over and over again without his consent and to his prejudice; and this is the one form in which it appears to us that something like a copyright in architecture might be established. The difference between merely taking advantage of an idea in plan or design, and making a complete imitation of a building, is one which can be easily recognised. As an instance, we know that the main idea of the plan of our Houses of Parliament has been imitated in several buildings for a similar purpose, and the architects of those buildings were indebted to Barry for their idea. No one can complain of that. But we should be ill pleased if any other country were to build an exact imitation of our Houses of Parliament; and such a proceeding, if done during the architect's lifetime, would be highly unjust to him, and practically amount to robbing him. "It is in this direction, of forbidding sheer imitation or rebuilding, that we think something might be successfully done in architectural copyright.

One other point we may touch on. M. Harmand, we observe, suggested that though people might draw from public buildings, for study, they should have no right to publish a sketch of one without the consent of the architect, as owner of the copyright in the design. This also will hardly be found practical or practicable, if we follow it out to its ultimate results. A man has no right to copy an architect's own drawing and publish it, certainly; it is copyrighted as a drawing. But is a traveller, for instance, to be prevented from making sketches of the public buildings and statues (for the two come under the same category here) in the cities he visits, and from inserting them in a book of his travels? The mere statement of this case will show, we think, that the proposal is Quixotic, and such as could not practically be maintained either in law or common sense.

THE PATENT OFFICE BUILDINGS AND THEIR SITE.

WE have noticed in our columns from time to time during the past six or seven years the gradual enlargement and concentration of the Patent Office and its sub-departments by the taking of sites in Took's-court, Cursitor-street; Quality-court, Chancery-lane; and the Garden-court, Staple Inn. In a few weeks will be begun the demolition for the rebuilding of Nos. 27-8, Southampton-buildings and of the old office—the large building that stands within the space between Quality-court (south) and Staple Inn and Southampton-buildings (north). As the structural history of the office gathers around that old building it may be of some interest to give an outline of its story.

Whilst the issue of royal letters patent has been regulated partly by statute, 27 Hen. VIII., c. 11, and partly by long-established practice, our Patent Law runs from the middle of the sixteenth century. Later enactments are very numerous; yet not until the passing of the Act 15 and 16 Vict., c. 83, did the Patent Office have separate existence. At that time there were six offices through which an application passed before the grant was issued under the Great Seal.* The last-named Act, 1852, set up a Commission consisting of the Lord Chancellor, Master of the Rolls, and the law officers of the Crown for England, Scotland, and Ireland. Lord Cranworth appointed Bennet Woodcroft, F.R.S., then Professor of Machinery at University College, as Superintendent of Specifications: the office was soon merged in that of Clerk to the Commissioners. The Government bought for 1,000*l.* Woodcroft's indexes of all patents enrolled in Chancery from 1617 to October 1, 1852, and it is mainly to his exertions that the country owes the Free Technical Library (1854) in Southampton-buildings, together with the collection of models and original machines that were removed from Kensington Palace to Gore House and then to the "Brompton Boilers" (built for them, and recently cleared away) opened as the Patent Office Museum by the Queen on June 22, 1857. Mr. Chamberlain's Act of 1883 dissolved the Commission, converted the Patent Office into a branch of the Board of Trade, and surrendered the Museum, many think very unwisely, to the South Kensington authorities.

(Old) Southampton-buildings was named after the house of the Earls of Southampton, descendants of John Wriothesley, Edward IV.'s Falcon Herald and Richard III.'s Garter King-at-Arms. The third Earl was the patron of Shakespeare, who dedicated to him his "Venus and Adonis" and "Rape of Lucrece." New Southampton-buildings, since absorbed in High Holborn, was built on the site of the house, which the Bishop of Lincoln bought about the year 1160 from the Templars for 100 marks; it was conveyed in fee to the first Earl of Southampton, *temp.* Edward VI., and demolished in or before 1657: see Howell's "Londinopolis." Gerard dates his Herbal "from my house in Holborn, within the suburbs of London, this first of December, 1597," and had a physic-garden there. Of the whiteblow or whitelow grass, the English nailwort, he says, "it groweth plentifully upon the backe wall in Chaunceries-

* In this order: the Home Office, Chambers of the Attorney and Solicitor-General, Patent Bill Office (Serle-street, Lincoln's Inn-fields), Signet Office (Somerset House), Privy Seal Office, Letters Patent Office (now No. 8, Quality-court), and the Lord Chancellor's Office for sealing.

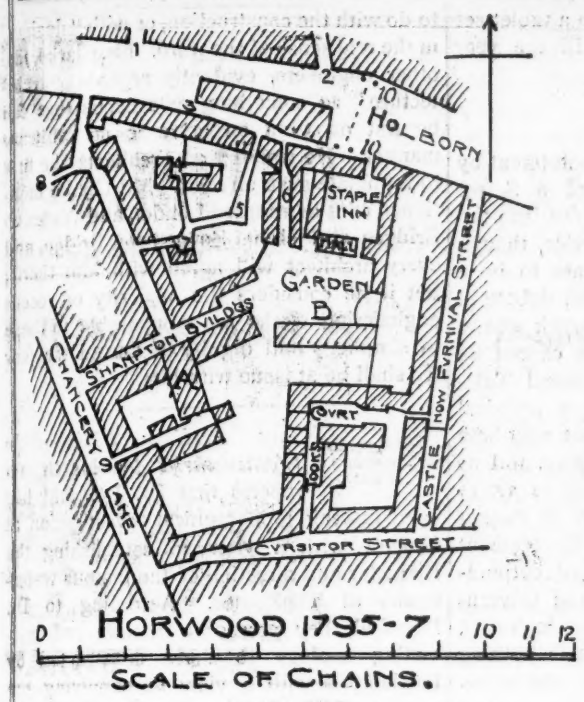


Fig. 3.

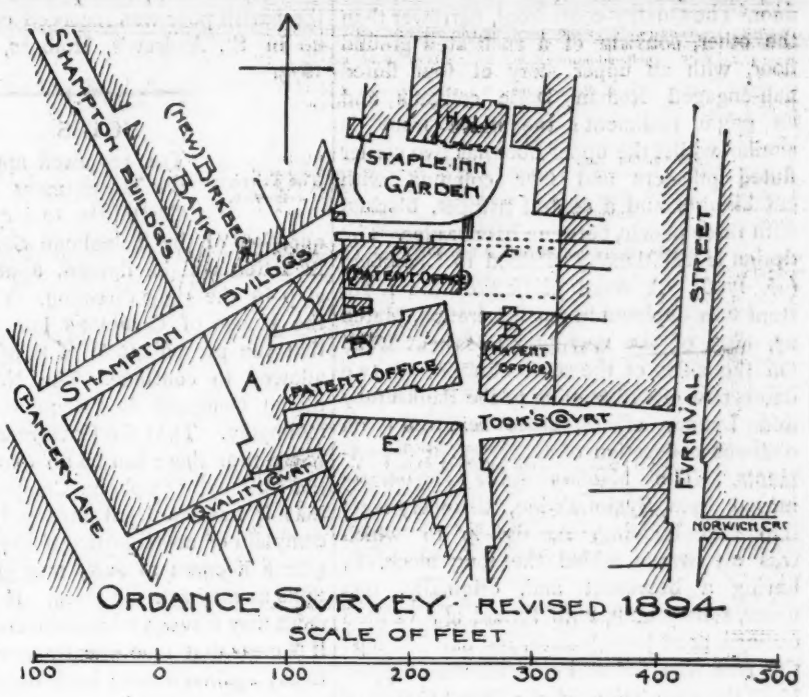


Fig. 4.

A. Masters in Chancery.
B. Staple Inn.
1. Gray's Inn Gate.
2. Gray's Inn-lane (now "road").
3. Middle-row.
4. "King's Head."
5. Jenin's-court.
6. Staple Inn-buildings.
7. Northumberland-court.
8. Southampton-court.
9. Quality-court.
10. Holborn Bars.

A. Old Office.
B. Old Office and Library.
C. Taxing Masters (1843: Site of 12 and 13, Staple Inn
D. Court Room Block.
E. Sales Branch.
F. Site of 11, Staple Inn (pulled down November, 1893).

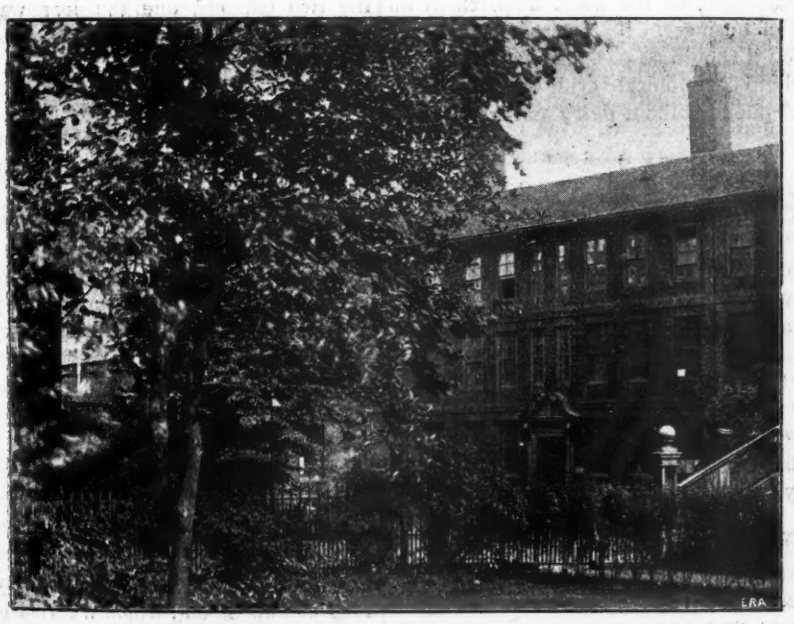


Fig. 5.—*No. 11, Staple Inn. (Pulled down in 1893.)*

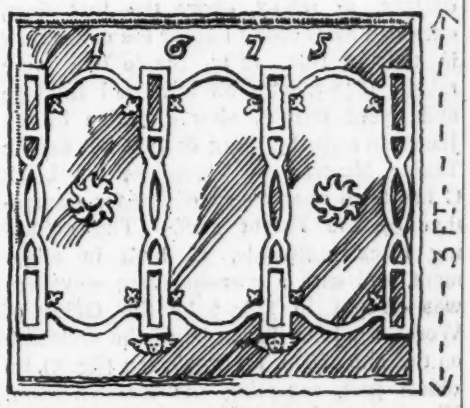


Fig. 6.

*Front of Leaden Cistern from Basement of No. 9, Took's-court, Cursitor-street, pulled down in 1891.**

lane belonging to the Earl of Southampton." The garden extended, it appears, across what are now the north and west arms of Southampton-buildings, being the large garden shown in the map of Velagio, *circa* 1550, the map attributed to Hoefnagel in Braun and Hogenberg's "Civitates Orbis Terrarum," 1572-3 (done before 1561, for St. Paul's has the spire), and by Aggas (fig. 1), as reaching along Chancery-lane to Symond's Inn. (Old) Southampton-buildings, whilst not in "Ryther's" map, second edit. 1608, or J. Porter's, 1654, is laid out by Newcourt, 1658, and by De Wit, Overton, and Dvornick, 1666. Stow says also the house adjoined the old Temple, of which the greater portion was pulled down in 1595. Cunningham writes (1850) that parts of the house still remained where are now No. 322, High Holborn, and No. 47, "The Blue Posts," Southampton-buildings. Some twenty years ago, in the course of excavations behind the London and County Bank, Nos. 324-5, High Holborn, were discovered remains of the Templars' first round church, of a chamber with tiled flooring, and of red-brick walls—these last were considered to have belonged to the house for whose foundations some of the chalk and stone of the Temple had been used.

Those, therefore, are wrong who say that the Patent Office occupies the site of Southampton House. Turning to the map of the City "made by John Ogilbye, Esquire, and William Morgan, his Majesty's Cosmographer," in 1677 (fig. 2), we see that nearly all the ground now covered by the office is unoccupied except by the south block of Staple Inn—since numbered 11, 12, 13—and houses at the north-west angle of Duck's—*i.e.*, Duke's, or Took's—court. With Ogilby and Morgan's map, part of which was engraved by Hollar shortly before his death, almost exactly corresponds R. Bloome's plan, 1755, of St. Andrew's, Holborn, parish. Having examined a large number of eighteenth-century [maps and surveys,† we find the same vacant space recurs; it seems, indeed, never to have been built upon, and lay just without the limits of the Great Fire. We come then to R. Horwood's map (fig. 3), scale about 2 ft. 1 in. to a mile, first published in thirty-two sheets in 1794-9, Ash being the engraver. There, on one of the sheets dated 1795-7, is plotted "Master Chancery [*sic*] Office," as newly erected, in pursuance of 32 Geo. III., c. 42—"An Act . . . . for building offices for the Masters in Ordinary in Chancery . . . and offices for the Secretaries of Bankrupts and Lunatics," on the site of Nos. 25-6, Southampton-buildings. It is a substantial fabric, having two stone fronts, a passage through lighted by two cupolas, and a spacious landing with alcove on the first

* The cistern was sold, along with the rest of the materials on the site. 4*l*. 10*s*. was paid for it.

† See particularly those by T. Bowles, 1731 and 1742; Rocque, 1741-5; Basire and Searle (from Rocque), 1749; Eliz. Foster, 1752; Kitchin and Sayer, 1775; Lawrie and Whittle, 1776.

floor. The Quality-court front, narrower than the other, consists of a rusticated ground floor, with an upper story of four fluted half-engaged Roman Doric columns and an angle pediment; the north front is similar, whilst the upper floor has two corner fluted pilasters and four columns, with entablature, and a central parapet, blocked with three panels, between balustrades. The design is traditionally ascribed to Chambers (*ob.* 1796). A small portion of the north front was depicted in our illustration, March 25, 1893, of the new premises next west. On the sides of the south entrance are two doors, now closed, leading to the Bankruptcy and Lunacy offices, since removed: an ominous collocation of Government departments. The Masters (now Registrars) moved from Symond's-inn, Chancery-lane, into that building, A, fig. 4, to which was afterwards added the long block, B, having a basement and, originally, two floors, solidly built, with turned and vaulted ceilings, good joinery work, and oak flooring: the roof was flat and covered with copper. Until the completion of the Royal Courts of Justice, blocks A and B were occupied by the Chancery Registrars, on the first floor, and the Patent staff. The Designs staff succeeded the Lunacy branch in the rooms, on the north side of Quality-court, entered from the cross passage. The Patents Reference Library was put in the long passage on the ground floor, B; an inconvenient arrangement, remedied by the erection of the Library, after Pennethorne's designs, in 1866-7, above the first floor, extended eastwards to cover the entire floor in 1885-6. Nos. 12-13, Staple Inn, were rebuilt 1842-3, with an advanced frontage and raised terrace, after a design in the Jacobean style by Wigg & Pownall, for the Taxing Masters in Chancery; the block C has been re-arranged within for occupation by the Patent staff. The adjoining block eastwards, F, built in alignment, and with a corresponding elevation, was erected in 1894-5 by the Office of Works, Sir John Taylor being the architect, on the site of No. 11, Staple Inn (fig. 5), its oldest part, excepting the Holborn front. The doorway had an inscription:—

Reaedificata Anno Dni., 1699.
Roberto Browne, Gen. Principali.

In 1891-3 the Office of Works had erected the block in the rear, D, containing the Comptroller-General's Court-room, on the site of old houses, Nos. 5, 8, 9, and 10, with their large gardens, along the north side of Took's-court, when were found, in No. 9, a leaden cistern richly ornamented in relief (fig. 6), with date "1675," and within a bricked chamber 14 ft. deep below the garden surface a great quantity of seventeenth-century tobacco-pipes, specimens of which are deposited in the Guildhall Museum. In 1892 were taken the sites of houses and gardens on the west side of Took's-court, with premises at the east end of Quality-court, for the Patent Office Sales Branch (E, fig. 4), then quartered in Cursitor-street; two of the houses in Took's-court had been occupied by the late John Francis, and by his son, for the printing and publishing of *Notes and Queries* and the *Athenæum*. The court, whose name has assumed many changes, appears, unnamed, in Hollar's map of 1675, and as Duck's-court in the index to Ogilby and Morgan's—it is called, perhaps, after Thomas Tuck, whose benefaction of 2*l.* per annum to the parish poor was recorded on a tablet set up in St. Andrew's, Holborn, in the year 1673.

NOTES.

The Telephone Service. THE proposed appointment by the Government of a Select Committee to inquire into the question of the Telephone Service, though its action will be limited, appears to be a step in the right direction. The debate in the House of Commons last week shows that the present state of things cannot be allowed to continue. The National Telephone Company has acquired a practical monopoly. That the Government may be a competitor there can be no denying, and as the National Telephone Company is aware that it has no legal monopoly, it cannot complain of any injustice if the Government grants licences to such municipal corporations as may ask for them. If the Government may manage telegraphs and telephones, it is clear that theoretically there is nothing to say against a local body doing the same, as the agent, so to speak, of the central government. Of one thing there can be no doubt, that England must not be deprived, as she almost entirely is now, of this great public convenience. Already on the Continent quite small communities make use of the telephone, to the great dispatch of all kinds of business. In a vast city such as London it should be possible for persons to be able to communicate with each other by the telephone without delay and at a small cost.

Scotch Private Parliamentary Measures. THE Bill to alter the procedure in regard to such business from Scotland as has now to come before a Committee of the House of Commons was read a second time on Monday, but with a general chorus of disapproval. Mr. Balfour made no secret of the fact that, under the circumstances, the Bill was practically dead. There is no doubt a general feeling that the procedure before Parliamentary Committees is not altogether satisfactory; but whether any change will be made is doubtful. It seems at first sight absurd as well as expensive to bring up witnesses, say, from Dublin or Glasgow to London if a railway Bill which affects these places is under investigation; but, after all, the facilities for getting up to London are so much increased that it is clear that, from a business point of view, London has become a more convenient place for hearing these matters than it used to be. We do not, therefore, look forward to any change in the existing system.

Beauty in Engineering Design. AN address on this subject by Mr. Fuhrmann Clarke, delivered to the members of the Birmingham Municipal Technical School Engineering Society, of which a brief report appears in another column, shows once more the curious confusion of mind under which engineers labour as to what it is that architects and artists complain of in their work. Mr. Clarke pointed out that "engineering designs and most engineering materials were not to be improved by the addition of architectural adornment." That is exactly what we have been urging over and over again. The thing which architects most complain of on the part of engineers is their bedizening their works with bad ornament which has nothing to do with the construction, or with "design" in the real sense of the word. Mr. Clarke, like other engineers, evidently regards "architecture" as something extraneous that can be put on to a structure in an arbitrary manner. He would find architects the first to repudiate such an idea. Mr. Clarke mentioned with admiration London and Waterloo Bridges and Menai Suspension Bridge, and every architect will agree with him there; but if he considers the majority of recent engineering works are comparable to these in simplicity and dignity of design we fear we shall be at issue with him.

The Aqueduct of Theagenes at Megara. THE *Berliner Philologische Wochenschrift* for March 12 reports that Dr. Dörpfeld has been making topographical investigation at Megara with a view to establishing the character and direction of the famous waterworks at Theagenes. According to Dr. Dörpfeld, they present a marked and interesting analogy to those constructed by Peisistratos with a view to supplying the market place at Athens. The water was brought from the high ground at the north of Megara by subterranean canals pierced through the Acropolis and leading to the market place. Dr. Dörpfeld also claims to have made out the peribolos of the city, the two citadels, and the long walls, and the position of the harbours of Nisaia and Minoa.

The Austrian School at Athens. FROM Athens we also learn that the newly-established archæological school of Austria has appointed its two directors—Herr Reichel and Herr Wilhelm. We congratulate the new school on having secured two of the most brilliant of the younger archæologists. Herr Reichel is known throughout Europe for his work on Homeric armour, and more recently for his brilliant monograph on "Pre-Hellenic cults." Herr Wilhelm has made no less a mark in the domain of epigraphy.

Marine Aquarium for Paris. THE Municipal Council of Paris has authorised MM. Albert and Henri Guillaume, architects, to construct a marine aquarium between the Pont d'Alma and the Pont des Invalides. This establishment, which will remain after the close of the Exhibition, will be on a large scale and include as varied a collection as possible of marine fauna and flora. The plans that are in preparation for the building promise a very original treatment.

Corporations as Shopkeepers. THE judgment which Judge Wightman Wood delivered in the action brought by the Leicester Corporation against Mr. Hill, a local contractor, for a small sum due for electric light fittings supplied to him, is important, as it affects the question of the right of a Corporation to keep what the Judge called an "emporium" for the supply of electric light fittings. In his summing up he stated that he could see nothing in any of the electric lighting Acts to give a Local Authority power to supply any internal fittings for the supply of electric light. Internal fittings are, of course, everything on the consumer's side of the meter. As the question was a very important one to be decided in a County Court, leave of appeal to a higher court has been granted. When the Leicester Corporation first began

to supply their clients and others with electric light fittings we mentioned that we thought that they were going beyond their legal rights. From an equitable point of view, it seems very hard that local shopkeepers who are ratepayers should have to compete against their own Corporation, especially as the electric light inspectors are Corporation officials. Another legal point which wants clearing up is whether a Corporation is not acting *ultra vires* in collecting the rents of a private company like the so-called "free wiring companies," as until all the payments are completed the legal ownership of the internal wires and fittings supplied is vested in the Local Authority. Shoreditch Vestry, for example, has recently entered into a working arrangement with the "National Free-Wiring Company." The Leicester case seems also to have a bearing on the question of the giving of glow lamps by Corporations as a rebate on their consumers' bills.

Fylde Union Workhouse Competition.

THIS seems to be another bad competition case. The Board of Guardians advertised premiums of 150*l.*, 100*l.*, and 50*l.*, which were duly awarded under the advice of a professional assessor, who awarded the first premium to Messrs. Crickmay & Son of London, and the second to a local firm, Messrs. Haywood & Harrison, of Lytham and Accrington. The Board, however, have decided to give the work to the second premiated firm, and the Chairman, in announcing this, incautiously remarked that special conditions had been inserted to the effect that the Board reserved to themselves the right to select any of the three premiated architects, and that this condition had been inserted "with a view of having a local man." Then why did they not confine the competition to local architects? We may add that we do not see any such statement in so many words in the "conditions." We read that "the premium of the architect selected to carry out the work will merge in the commission," a sentence which no doubt implies that a choice would be exercised, and ought to have put competitors on their guard; but it is evident enough from the Chairman's remark above quoted that there was a preconceived intention of employing a local architect, and therefore that the open competition was a mere piece of amusement, at the expense of the competing architects.

Chipping Norton Rural District.

DR. W. W. E. FLETCHER'S report to the Local Government Board on the prevalence of diphtheria in the Chipping Norton Rural District, seems to show a very insanitary state of things in some portions of the district. None of the villages visited have proper drainage arrangements, though drainage of a kind is usually provided. Excrement disposal is almost entirely effected by means of ordinary cesspit-privies, or of pail-closets, the cleansing of which is performed by the occupiers of the premises to which the closets belong. House accommodation is generally of such a kind as to render isolation impossible. This latter incident seems to have had an important influence on the spread of infection, while (quite contrary to usual experiences) the origin of the diphtheria cannot be directly traced to the defective drainage or other insanitary conditions. Dr. Fletcher observes that throughout his inquiry careful attention was paid to questions of water-supply, condition of dwellings, drainage, and excrement disposal; but no evidence was obtained which would tend to incriminate any one of them. This is, at all events, a very unusual result of such an inquiry.

Leicester-square.

PROGRESS is being made with the rebuilding of the Hôtel de Paris at the north-east corner of the square, and adjoining the Empire Theatre. Messrs. Saville & Martin are the architects: the contractors are Messrs. Patman & Fotheringham, of Islington, N. The site was formerly occupied by old Leicester House, built *circa* 1635, for Robert Sidney, second Earl of Leicester, father of Algernon Sidney, of Henry—the handsome Sidney of the De Grammont memoirs—and of the Lady Dorothy, Waller's "Sacharissa." The ground had been part of some lammas land granted to his ancestor Lord De L'Isle and Izes by Henry VIII., for which it is known he made certain yearly payments. Dryden, then living in Gerrard-street, dedicates his "Don Sebastian" to the Earl of Leicester, and describes himself as a poor inhabitant of his lordship's suburbs, whose best prospect is on the garden of Leicester House. Lisle-street was built over the garden in 1791, and the house was pulled down about the same time. It is "the pouting-place of princes" of Pennant's often-quoted phrase, having been the home of George II. when Prince of Wales, and, in 1743-51, of his son Frederick; it was also the occasional residence of George III. before he succeeded to the throne, and there his accession was proclaimed. Leicester House—which had been the last home of the Princess Elizabeth, titular Queen of Bohemia, who died there on February 13, 1661—was afterwards occupied by George II.'s son, William Duke of Gloucester, on his marriage with Maria, Countess-Dowager of Waldegrave (mother of the three Ladies Waldegrave painted by Sir Joshua Reynolds), and then by Sir Ashton Lever, for his museum. Sutton Nicholls's prints of 1721 and 1754 show the house as having a left wing and a spacious forecourt to the south, the house next west being the Earl of Ailesbury's, since Saville House, where now stands the Empire Theatre.

Great Hampden Church, co. Bucks.

A STAINED-GLASS window has been placed by public subscription in St. Mary Magdalen parish church as a memorial of John Hampden. The church stands at the end of a grove of limes close by the garden of his home, on a ridge of the Chilterns, and amidst a woodland scene of singular beauty. His body was carried thither from Thame; the register records his burial on June 25, 1643, but notwithstanding the examination of his supposed remains by Lord Nugent, on July 21, 1828, the precise position of his grave, and, indeed, the actual manner of his mortal wound, are alike unknown. On the monument erected in the church *circa* 1754, by the Hon. Robert Trevor, afterwards Lord Hampden, who had succeeded to the property on the death of John Hampden's last male heir, Chalgrove Church is shown as having a spire, and the costumes are not of the period. In 1893 the restoration of the church was entrusted to Mr. J. Oldrid Scott, at an estimated cost of 1,963*l.* In a "Note" on August 11, 1888, we gave some particulars of the descent of the estate, and of the brasses in the church: in Vol. x. of the Art Union, 1848, will be found some charming woodcuts, by F. W. Fairholt, illustrating the church's interior and exterior, the monument, the memorial on Chalgrove Field, and the house at Thame wherein, it is supposed, Hampden died on Sunday, June 24.

The Australian Art Exhibition.

THE collection in London of a number of pictures painted in Australia by Australian artists was a good idea, as giving us an indication of the state of art in Australia, though one hardly sees the promise as yet of a new school of Australian art. The exhibition introduces us to one able landscape painter, Mr. W. Lister-Lister, whose "Passing Shower" and "Graham's Valley," and some others, show really fine qualities; Mr. Sydney Long and Mr. Arthur Streeton contribute some effective landscapes of rather impressionist character; Mr. Tom Roberts's "The Golden Fleece" is an interesting study of local industry and character, and the same artist paints one or two heads of aborigines in a forcible manner. One or two pictures, such as Mr. Streeton's "Hawkesbury River," seem to give us a local character of scenery, but in general the landscapes do not suggest anything apart from European locality and style. Mr. Piguenit's "Flood in the Darling" is only Heffner over again, and other works in the exhibition suggest French influence at second-hand.

The Opera Comique, Paris.

THE new Opera Comique is to be completely finished in October next, according to the engagement entered into by the Government. The Minister of Fine Arts, in consequence, is demanding from the Chamber of Deputies, in view of the completion of the works, a new credit of 920,000 francs in addition to the expenditure already authorised, and which amounts to 3,425,000 francs.

THE STATE OF NORWICH CATHEDRAL.

As a good deal has been said lately in the papers as to the state of Norwich Cathedral, and the need for repair to various parts of the fabric, the following statement from the Dean on the subject may be of interest:—

"Dear Sir,—I have very little to report as to the existing dilapidation of the fabric of the Cathedral. Exclude the west front, which was cruelly maltreated in days gone by, and St. Anne's Chapel on east side of the north transept, and the dilapidation has given place to such repair as will endure, in all probability, for centuries. Beginning at the south-east, from our Chapter Clerk's Office, continue round the east end, then to the north-east—which Mr. Person's report described as in 'a pitiable condition'—include the east, north, and west sides of the north transept, and continue along the whole length of the north side of the nave aisle, and all is perfect. Not one inch of sound old work has been interfered with. Nothing has been done except to replace decayed by sound stone. We are now at the south side, and I am in strong and intelligent hope that in twelve months the fabric of Norwich Cathedral will have been placed beyond the need of any further repair than may be rendered necessary by the silent deterioration of time or by some destructive tornado. So far the Cathedral is and will be perfectly secure. No structural alteration is allowed. All has been done under Mr. Pearson's report.

"The cloister, however, is, in parts, in a pitiable and, if I may so say, a most pathetic condition. The ashlar surface is, over a wide area, in ruin. The exquisite tracery, in each of the styles represented, is crumbling. Several

pillars have already fallen away. The parapet of the north side—the latest in construction—is bulged. I saw this for the first time on Monday morning by getting through a window and ascending to the broad walk. Then the line of the parapet was revealed. This need not necessarily mean danger; but as to this, as well as to the mode of reparation, the quality of stone to be used, and every other point, the best opinion shall be secured, the most painful care shall be given, and the utmost patience in thought, in study, and even in work.

I have collected all over Norfolk and Suffolk all the funds which have enabled us to prosecute the reparation from 1891-98. I doubt very much if more money can be raised in an area which has been already gleaned; and unless my judgment as to the condition or liabilities of the cloister is so corrected by the best opinion the Dean and Chapter can secure as to lead me to believe that reparation may not be safely deferred, I shall consider it my duty to allow the next Dean and the next generation to do for the cloister what we have done for the cathedral.

"May I say we have completed a method of drainage which will save the cloister foundations from an influence which must, had it been suffered to continue, have brought the superstructure down. The whole of the rainfall on the south side of the nave came into the garth. It was received in two pits, which, while bricked round, were unbricked at the bottom. Provision was thus made for an increasing bed of perpetual ooze, which no doubt affected the whole area. We have now constructed a cement channel and a bevelled course. From the latter, as well as from the spouts, the rainfall is carried into the channel. It flows by a new drain into the larger drain of the Close. This I regard as one of the safest works we have attempted.—Most truly yours,

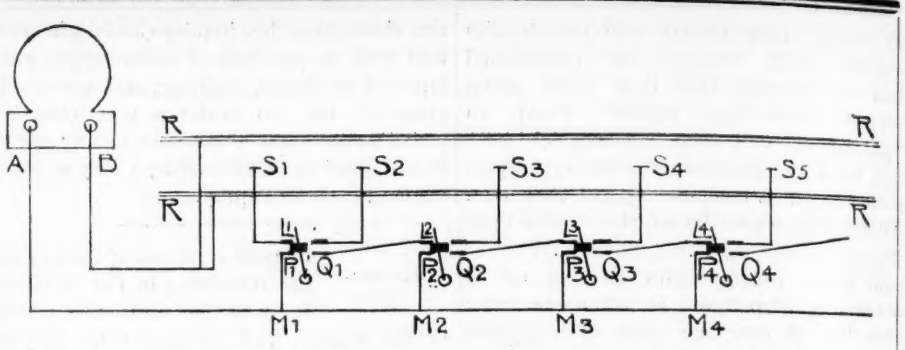
"WILLIAM LEFROY, D.D.,
Dean.

"*The Deanery, Norwich*, March 30, 1898."

A NEW SYSTEM OF ELECTRIC TRACTION.

OF the three systems of electric traction which have been practically adopted in public thoroughfares, the surface contact system appears to us to be the most suitable for crowded streets. The only difference between the appearance of the track for this kind of electric tramway and for a horse tramway is the appearance at distances varying from three to six yards, of little rounded iron studs, which project about three-eighths of an inch above the roadway, and which are no obstruction whatever to the other traffic. If such a system can be made absolutely reliable, and if the track can be constructed at a cost not more than about twenty or thirty per cent. greater than the cost of the overhead trolley system, then it can economically and advantageously replace horse traction in many of the London tramways. In Paris a surface contact tramway has been in operation for the last two years, and has apparently given satisfaction. One great drawback to the Paris line, however, is the great complication of the electrical connexions necessary, as such complication must detract from the absolute trustworthiness of the system. The Westinghouse system, which we described two years ago, has not made much progress in this country, as experts, rightly or wrongly, are sceptical as to the reliability of the two or three cells carried by the car to energise the underground electric switches, as they have to work through two bad rubbing contacts.

In order to understand the main difficulty that has to be overcome in designing a surface contact tramway we will state shortly the problem. Metal knobs are placed about every six yards between the rails. When the car passes over them a rubbing contact is made between the knobs and the positive poles of the motors by means of a collector-bar carried underneath the car, the other poles of the motors being connected to the rails through the wheels. Now, as the working voltage for electric tramways is 500 or 550 volts the knobs must only be connected to the high-pressure underground main when they are underneath the car, and the moment the car passes over them they must be disconnected from the main. It would be highly dangerous if one of the knobs were accidentally left alive after the car had passed over it; on a wet day a horse tramping on it would be almost certainly killed,



Principle of the Kingsland Electric Tramway.

and a man would get a very severe, if not necessarily, fatal shock. Any possibility of this occurring must, therefore, be absolutely guarded against. Various methods of switching on a knob to the main the moment the car gets over it, and switching it off again the moment the car passes it, have been invented. Sometimes cells carried on the car actuate underground switches by means of a second set of knobs, and a second collector-bar, or sometimes a heavy electro-magnet, carried by the car itself, is used to actuate them. In Mr. Kingsland's system, which we will now describe, the electric arrangements of the car are practically the same as in the trolley system, the only difference being that the trolley pole on the top of the car is replaced by a collector-bar underneath.

In order to explain briefly the principle of the Kingsland system, we shall describe it as if the switches were worked mechanically by the car instead of electrically, and it will be seen that the method is not unlike that employed to enable an electric lamp to be controlled from two separate switches.

In the figure let S_1 S_2... be the knobs in the centre of the track and R R be the rails. Let A B be the terminals of the dynamo at the power station, the high-pressure terminal A being connected to the underground main M_1 M_2... and B being connected to the rails. P_1 Q_1, P_2 Q_2,... are switches, and L_1, L_2... levers which we may suppose actuated by the car. In the figure the car is supposed to be over the stud S_1, which is the only one connected to the main M. If now we close the motor circuit on the car, the current can flow from A through M_1, P_1, S_1 and R to B, and the motors will begin to turn round and move the car forward. When the collector-bar touches S_2 the lever L_1 is moved over, and makes connexion between Q_1 and S_2 and therefore between M_2 and S_2, and it will also be seen that the connexion between M_1 and S_1 is broken. Mr. Kingsland so arranges his switches that the circuit between S_1 and M_1 is not broken until after the circuit between S_2 and M_2 is made. Hence the current supplied to the motors is continuous and there is not the slightest sparking at the switches. An inspection of the figure will show that the car automatically switches in a stud as the collector-bar touches it, and at the same time switches off the preceding stud.

Instead of having mechanical levers, Mr. Kingsland uses a very effective form of magnetic switch which acts with the greatest certainty. If by any mischance one of these switches failed to act, then the car must stop, and the fault could be at once discovered and remedied. The switches are made to go into cast-iron boxes, the covers of which are 8 in. by 10 in. The cable connexions go in through water-tight glands, and are so connected to the switches that they can be readily taken out for inspection. These boxes and studs will be placed at distances of from 5 yds. to 6 yds. from each other, along the line, but at sharp curves they will have to be placed closer together.

We have seen a working model of this tramway which Mr. Kingsland is exhibiting at the Electrical Standardising Institution, Faraday House, Charing Cross-road, and also specimens of his switches. He informs us that the cost of the track and all accessories is between 5,000*l.* and 6,000*l.* per mile. As the cost of the overhead system is between 4,000*l.* and 5,000*l.* per mile and of the conduit system is over 6,000*l.* per mile, it seems worth the attention of the many local authorities who are hesitating as to what system of electric traction to adopt.

A NOTE ON HERALDIC DRAWING.

IN his interesting paper on this subject, read before the Institute of Architects a fortnight ago, Mr. Crace, in order to explain the origin of the wreath or torse, exhibited a model of a helm with its accessories, the crest being attached to the mantling and the whole tied to the helm by the wreath. As a parallel case, he pointed to the cord or small puggari by which the Arabs secure the drapery on to their heads, and of which the leathern thong that appears in the early thirteenth century as a means of steadying the mail coif over the chapelle-de-fer is an European equivalent. But in deriving the wreath from a band whose first duty is to tie something to the helm, there seems a possibility that a mistake is made, and of this possibility the first suggestion lies in the fact that the wreath is always depicted as twisted, and that its older name of "torse" implies something twisted. If it were a mere cord in use, its simplest and truly heraldic form would be the plain line of a flat leathern thong. The second suggestion is connected with the small bascinet—the successor of the chapelle-de-fer. This was a pointed skull-cap with camail or gorget of chainwork secured to its lower edge by a leather thong, and over it was worn in battle or tourney the great helm. To deaden the noise and shock of a blow on the helm, it is natural to imagine a torse of some soft material placed puggari-wise on the bascinet, and such a torse is sometimes shown, without crest or mantling, upon the vizorless bascinets of this period. The present writer imagines this to be the true origin of the wreath. The crest—sometimes a very heavy affair of wood and metal—was often, as existing samples show, fixed directly to the helm without the use of mantling. The mantling possibly developed from the down-hanging ends of the torse; it at all events made its appearance soon after the helm rendered the torse a desirable addition to the bascinet, and it may be seen upon the effigy of John of Eltham (died 1334) in Westminster Abbey.

The use of the shield heraldically seems to have been practically confined to Europe, and would seem to have been known before crests were common. Alexander the Great is said to have had a lion rampant on his; Tacitus refers to the devices on the German shields, and the shield of Magnus Barefoot (1093) bore a golden lion. As a decorative feature, the shape of the shield has not been treated in England with the variety and skill displayed by the Germans; but the increasing appreciation of heraldic design is leading to improvement.

The illustrations exhibited by Mr. Crace were of high interest, especially several original drawings by Pugin and some by Mr. Eve; and a very fine Spanish cloth of State embroidered with colours and metals in relief on a velvet ground, illustrated an application of heraldry rarely seen in England.

A reference was made during the discussion to the absence of all things female save the mermaid from heraldic representation, but it may be pointed out that the scaly lady does not hold quite such proud pre-eminence, as we have also the hind, the pelican-in-piety, female angels; and a representation of the Earl of Poulett's arms, dated 1784, shows a "savage woman proper" as the sinister supporter. It may be claimed that with the exception of the pelican these all appear as supporters only, and therefore, were used very little, if at all, in the days when heraldry had to fulfil its original purpose. Is it merely accidental that the Irish peerage shows a greater proportion of female supporters than the English or Scotch, or is it a true criterion of the natural gallantry of that people?

CONSTRUCTIONAL STEELWORK.

THE following is the conclusion of the paper read by Mr. T. C. Cunnington at the meeting of the Architectural Association on the 25th ult., the first part of which was printed in our last issue :—

Continuing the subject of foundations for Columns and Stanchions, the lecturer referred to the building of some flats at Tufnell Park. In this case, he said, it was not considered advisable, from the nature of the site and the great expense, to take the walls down to the requisite depth for foundation. From the drawing it will be observed that in the positions shown, piers about 4 ft. square in Portland cement concrete were taken down to the solid strata, and upon these piers a framework of steel joists was built, properly fitted and connected together to carry the external and principal internal walls. By this method it will be inferred there is little or no possibility of any one part of the wall subsiding without affecting the general structure. The foundations, basement columns, &c., are either surrounded by constant moisture or by the wet clay or earth itself. For such positions cement mortar should undoubtedly be used, as from experience it seems the most perfect conservator of metal work. A further recommendation of the use of cement lies in the fact that the thermic expansion of Portland cement is practically the same as that of steel, a fact which ensures perfect cohesion under any changes of temperature. It has been suggested to rely entirely upon the preserving qualities of cement rather than upon a proper painting of the metal work. Professor Bauschinger states that his experiments show a cohesion between steel and concrete after hardening of from 570 to 640 lbs. per square inch, which is more than the tensile strength of good concrete, but in building work a perfect union between the cement mortar and metal work can never be attained at all points, and a thorough coating of paint must largely be relied upon. All constructive steelwork should therefore be well coated with either lampblack mixed with oil, or red lead and linseed oil, the very best of materials being employed. The oxide of iron or mineral paint which has generally been specified for all painting of the metal work has been found to separate from the steel and form an oxidation of the metal behind the paint. A mixture of red lead and linseed oil is now considered as the best protective coating for iron or steel. Having regard to their importance in steel construction, we have dealt somewhat in detail with columns and stanchions, together with their foundations. We will now proceed to deal with girders, their connexions, and bearings, and the various forms of floors.

Girders.

In designing a building numerous cases occur where a single joist-girder will not be suitable, and it may be necessary to increase the length of the spans, so as to reduce the number of the supporting colums or stanchions to the minimum, or perhaps heavy, concentrated loads, such as columns, stanchions, brick walls, chimney breasts, and stacks necessitate the introduction of plate and angle-rivetted girders, or compound girders of joists and plates. Having calculated the loads on the several girders, it is an easy matter to determine the sections most suitable to the purpose. It frequently happens in designing a building that excessive loads are concentrated at two or more points of the floor, and in order to confine the construction within the limits of the design without increasing the sections where the minimum loads occur, recourse has to be had to various methods. The depth of the girder being reduced to the minimum in order to obtain the required strength, the flanges of the girders must be unusually wide, the webs well stiffened or trussed. An illustration of this occurs in the ground floor ceiling of the West Australian Bank, Cornhill, as also the ceiling of the news room of the Shoreditch Library.

Where the ends of the girders rest upon the wall it is advisable to use steel bearing-plates or joists to distribute the pressure over a greater surface, and thereby prevent the crushing of the material in the wall directly under the girder. In most cases a large tough stone will be sufficient, but where the pressure is heavy, both plates and stone should be used. The average pressure per square foot for brickwork should not exceed six tons, and for stone, twelve to twenty tons, according to its character.

In calculating for loads upon girders where the bricks are laid regularly the probable line of rupture (providing the girder should fail) will be found to be inside of the sides of an isosceles triangle, whose base is the span, and whose height is one-third of the span. In order to be entirely upon the safe side, the weight of the wall between vertical lines directly over the girder for a height equal to that of the triangle, is frequently adopted as the load to be carried. However, it should be noted that for green walls, or walls having openings, this rule does not apply, as the full height of the wall between the points of support must be provided for. Where the width of the walls, supported by girders, either internal or external, exceeds 14 in. it is advisable to use compound girders, or plate girders, and where plate girders it is preferable to have them double webbed, or box girders, the latter giving greater stability than the single web girder.

In all built girders it is advisable that the flanges alone should be considered as resisting the bending moments, and both flanges nominally of the same section. No angles used smaller than $2\frac{1}{2}$ in. by $2\frac{1}{2}$ in. by $\frac{5}{16}$ in., and no webs of less thickness than $\frac{1}{4}$ in. Stiffeners of tee or angle bars must be used where the depth of the girder is above a certain ratio in proportion to the web (say seventy times), and disposed so as to resist the shearing forces upon the web. In all cases it is absolutely necessary that they are provided at all bearings, and at points of concentrated loadings, and where straight stiffeners are used (they being preferable in girders for building work) the ends of them both top and bottom must fit closely against the flange angles in order to fulfil their proper functions. The safe loads for steel joists are given in the various merchants' catalogues, as also for compound girders made of joists and plates.

In designing compound girders, say of two joists, with plate top and bottom, take the safe load given for the two joists, making due allowance for the quantity of material taken from the flanges in the rivet holes, and the difference must be provided for in the sectional area of the plates. The distinct functions of the flanges and webs of all girders with thin, continuous webs are that the whole of the horizontal strains must be provided for in the flanges, the web practically taking no part in resisting them; neither are the horizontal flanges considered to take part in resisting the shearing forces, the whole of which must be provided for in the webs.

In selecting joists for girders, or similar purposes, the proportion of depth to length should not be less than one-twentieth of the span, otherwise deflection may take place. Due allowance must be made for all holes drilled in the joists for connexions, &c., more especially for such that are placed in the flanges. The depth of plate girders should be one-tenth to one-sixteenth of the span; the greatest economy of material is perhaps obtained at one-twelfth. For continuous girders or girders fixed at the ends the depth may vary from one-fifteenth to one-twentieth of the span. The width of the flange should not be less than one-thirtieth to one-fortieth of the span, and no plates should be less than $\frac{1}{4}$ in. thick.

The general formula for plate girders of this class is $S=\frac{W\,L}{8\,D}$

S = Strain on top and bottom flange at centre in tons.

W = Weight distributed in tons.

L = Length of girder (or span) in feet.

D = Effective depth of girder in feet.

Steel may be strained to 7 tons per square inch in tension and compression, although some authorities limit it to 6 tons per square inch.

Floors.

Before considering the most economical arrangement of steelwork for floors, the question of loads, which very largely governs the design of the floor system, must be examined. The loads in building construction may be classified as dead, live, and eccentric loads. The principal loads affecting the floor systems are :—

Dead loads, comprising all of the static loads due to the constructive parts of a building; stationary machinery, water tanks, or other permanent loads.

Live loads, comprising the people in the building, office furniture, movable stocks of goods, or varying loads of any character.

The maximum live load per square foot is usually assumed as follows :—

For Crowd of people	80 lb.
„ Floors of houses	40 „
„ Theatres and churches	80 „
„ Ball-rooms or drill-halls	90 „
„ Warehouses, &c.	from 250 „ upwards.
„ Factories	200 to 450 „

While 80 lb. is the maximum possible live load per square foot from a crowd of people (unless dancing be considered). Still, we can hardly expect to realise any such load under the conditions governing an office building.

Large crowds very seldom collect in offices, except on the lower floors devoted to stores, or banking purposes, and greater allowances are generally made for such places; the ordinary office furniture will certainly not exceed and seldom equal the weight allowed for persons, and hence additional security is introduced. These loads used in the calculations affecting the girders, columns, and stanchions, must not be confounded with the required loads for the strength of the individual floors, while the live load per foot super may be reduced over large areas in proportioning the girders and columns. The maximum possible live load must still be used when any single floor is considered by itself.

The practice in America seems to be pretty well defined in the matter of decrease of *live loads* per square foot, as they are transferred from beams to girders, from girders to columns, or stanchions, and thence down the columns to the footings. This practice is founded upon the supposition that it is quite possible that the beams may sometimes have to carry their full capacity in *live* loads, while the chances are increasingly less that the girders or columns will ever be required to carry anywhere near their full capacity if a full load had been assumed. The fully loaded area would probably never be large, and a girder or column would rarely, if ever, lie in the centre of such area. The effect of a live or moving load, causing vibration in the parts of a structure, is also gradually lessened, as the vibration, if any, is taken up in the transfer of the load from member to member, so that by the time it reaches the footings, or foundations, the live load is ignored entirely.

As examples of this system of calculation the following may be mentioned. In the Venetian Building in Chicago the beams were calculated for the following live loads :—

Upper floors, per foot super	35 lbs.
Second, third, and fourth floors, do.	60 „
First floor, do.	80 „

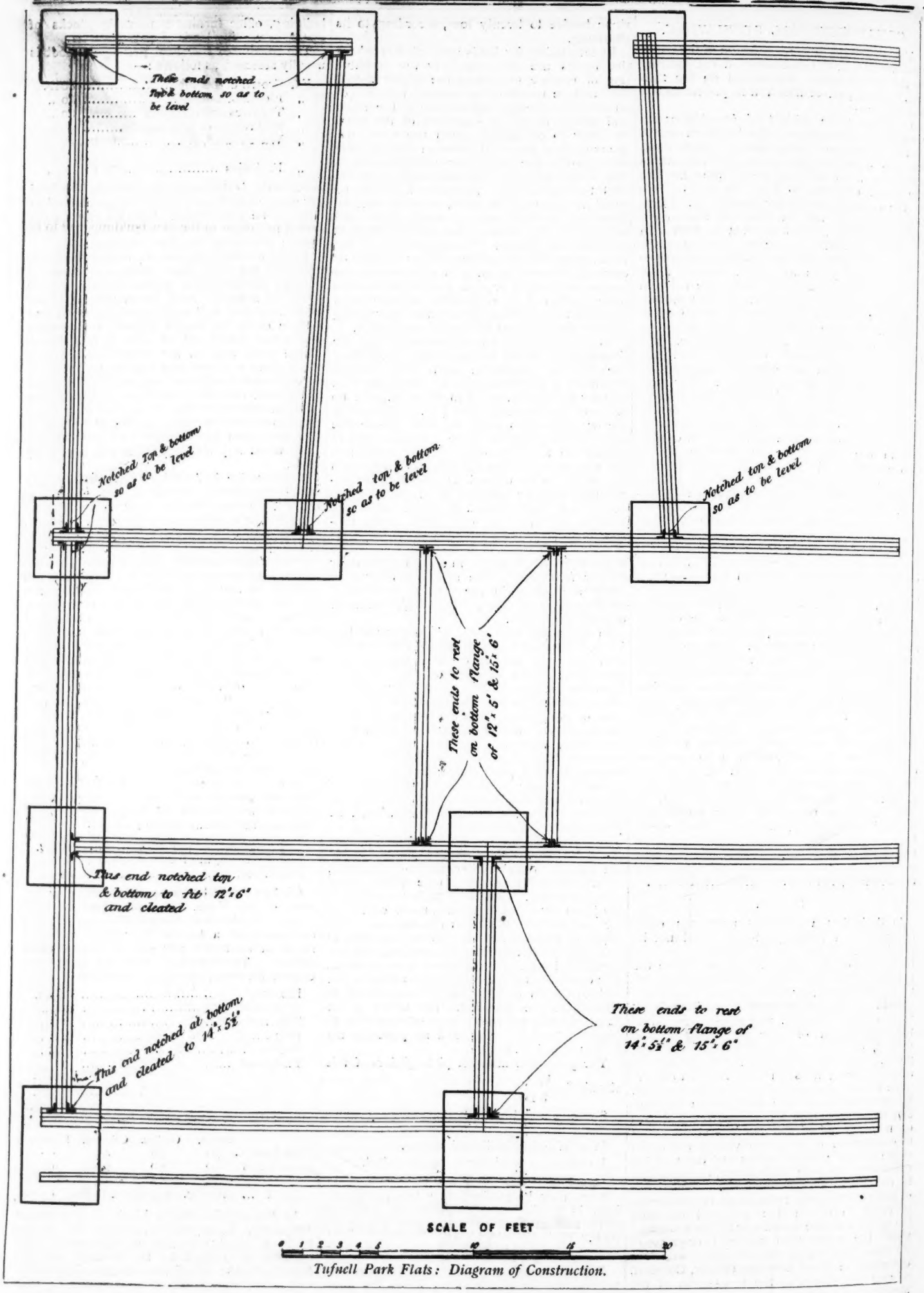
Girders carry 80 per cent., columns 50 per cent. of the loads. The weight of the steel girders, and brick or tile partitions are actually calculated for a typical floor plan, and then rated at so much per square foot of floor surface. The dead loads assumed in the old Colony Building, Chicago, comprised—

Flooring	4 lbs.
Deadening	18 „
Tile arches	35 „
Iron	10 „
Plaster	5 „
Partitions	18 „
Total	90 lbs. per foot super.

giving the following results :—

	Beams.	Girders.	Columns.	Footings.
Live loads...	70	50	40	—
Dead loads	90	90	90	90
Total ...	160 lbs.	140 lbs.	130 lbs.	90 lbs.

In the administrative block of the Royal Infirmary, Liverpool, which is five floors high, a similar system of calculation was adopted in regard to the strength for the lower columns and girders. In floors generally, one of the main points to be considered is that they must be firm and rigid, at the same time as light as possible, and subject to no vibration; to ensure this desideratum the joists must be of adequate depth. With the several systems of fireproof floors I do not now propose to deal in this paper, as the subject is so comprehensive that it is desirable to deal with it separately. The several examples shown of floor framing fully illustrate the way they are connected to the girders. Where they abut on girders they seat on angles which are rivetted or bolted to


These ends notched Top & bottom so as to be level
Notched Top & bottom so as to be level
Notched top & bottom so as to be level
Notched top & bottom so as to be level
These ends to rest on bottom flange of 12" 5' & 15" 6'
This end notched top & bottom to fit 12"x6" and cleated
This end notched at bottom and cleated to 14"x5½"
These ends to rest on bottom flange of 14"x5½" & 15"x6"
SCALE OF FEET
0 1 2 3 4 5 10 15 20

Tufnell Park Flats: Diagram of Construction.

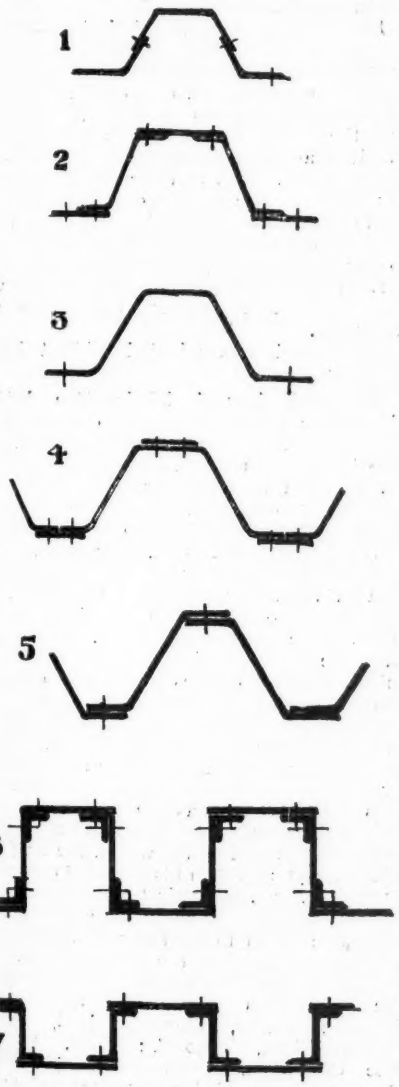
the webs, and in special cases the joists are angle cleated to the girders.

Steel Flooring.

Each of the several systems of steel flooring has some special features. No. 1 is flooring made of steel trough-bars of various sections and weights per foot, from 4¼ in. deep to 12 in. deep; the depth of the 12-in. section can be increased to 15¾ in. deep by the addition of bars. The sections up to 12 in. deep are rivetted together on the neutral axis, and the sections over 12 in. deep require two rows of rivets. This steel flooring is used in the floors of the National Liberal Club, Prudential Building, Holborn, Bishopsgate Goods Depôt, and in a number of other buildings. Section No. 2 is rolled in depths 10 in., 12 in., 14 in. and 18 in. if required. In this section the rivetting is on the top and bottom flange. Section No. 3 is either rolled or pressed in several depths and strengths, and is used as shown on illustration No. 4, with plain bar rivetted to both top and bottom, the edges of the troughs abutting. It is also used as shown on illustration No. 5, with the troughs lapping and one row of rivets top and bottom. Section No. 6 is a simple form of flooring, composed of plain plates and angles rivetted and connected as shown. It can be made any strength, depth, or span by increasing

the sectional area of the plates and angles, or by increased depth. It is nominally the same price per ton as the other section. Where the ends bear upon the walls, steel or iron bearing-plates must be provided, and it is advisable to keep these plates a little distance in from the face of the brickwork. These several classes of flooring can be fixed either upon the top or bottom flange of the girders or upon angle bars that are rivetted upon the webs of the girders, and bolted down as indicated upon the several illustrations.

The strengths of these floorings and loads supported at the various spans are each generally tabulated upon the sheets, which give every information. These floors are well adapted for warehouses, factories, mansions, and public buildings, or in any situation where great and variable strains occur, either by crowds or the vibration of heavy machinery. The strength of these steel floorings when rivetted together is considerable, as each trough may be treated as a girder; as the whole is



Sections of Steel Floors.

rivetted together no one portion can deflect without dragging down the adjoining troughs for some distance from the point of application of the weight.

At this stage it would not be advisable to go into the question of the finishing of the floors, as I consider it ought to be treated separately or dealt with in a special paper. As before mentioned, that in order to render a building "fireproof" where steel construction is used, it is absolutely necessary that every member of the construction must be thoroughly and adequately encased in some fire-resisting material, so as to remove the metal from the direct action of the fire; and if this particular is insisted upon, we shall not have such lamentable catastrophes that continually occur, more particularly in city buildings.

We have not now time to discuss the very important subject of roofs, as it is one that requires to be treated also in a paper entirely by itself, from the fact of it being so comprehensive. However, several illustrations of various types of "roofs," with details of same, are given on the various drawings. The one for the council chamber of the County Council Buildings, Stafford, will illustrate the system adopted for fire-proofing a pitched roof of that class. The room is 42 ft. square, and the pitch of the roof is 51 degrees. The roofs, 28 ft. square of the same buildings, were also constructed in steel, with trussed purlins and lattice girders, so as to provide a level ceiling for the committee rooms below and for fire-proofing the roof of the same pitch throughout. The roof of the Town Hall of Oxford Municipal Buildings is an example of construction whereby the ceiling can be kept as high as desired, at the same time keeping the side walls down to the minimum. The same principle is also shown in the proposed detail of principals for the roof over the first-class swimming bath at Shoreditch Baths. The only further example that may he referred to is the gymnasium roof at Kingham Hill, which stands independently of the walls, part of them on plate girders, 40 ft. span, and the remainder on the usual stone templates.

Although the subject has been dealt with somewhat in detail, and examples of practical work have been given, most of them being works executed, a great many points in reference thereto have not been mentioned, more particularly independent structures, bracings, and questions analogous thereto; but having had the opportunity of laying the subject before you, I hope it may prove an incentive, and receive that attention which so important a subject demands in connexion with the practice of the architect.

The Chairman, in opening the discussion, said that the lecturer had succeeded in investing what appeared to be rather a dry subject with a large amount of interest. The reason, he supposed, why such a subject was more interesting to engineers than to architects was due to the fact that architects did not give sufficient study to the engineering construction of their buildings. It was very evident that engineering matters were not dealt with by architects as they should be. Architects were in the habit of placing the engineering work connected with their buildings in the hands of engineers, but he thought that an architect should study the engineering problems of his work a little more than he did—although he was afraid, unless they had a larger span of life given them and plenty of leisure, there was not sufficient time for the adequate study of such matters. At the same time, architects ought to understand the principles of engineering work, even though they might not have the opportunity of working out strains and stresses, and he thought that it would be well if less dependence were placed upon the engineer. Quite recently the Discussion Section of the Association held in that room a joint meeting with the Institution of Junior Engineers, when a discussion took place upon the desirability of a closer union between architects and engineers.* The general opinion of that meeting seemed to be that architects could not do without engineers, while engineers could not do without architects. At the rate that iron and steel construction had been going on during the last ten or twenty years, architects would soon be left behind by the engineers—if that were not an accomplished fact already. He hoped that some of the diagrams shown by the lecturer would be published in the professional papers, or otherwise a good deal of interest in the paper would be lost. From an example that the lecturer had sketched upon the blackboard, he, the speaker, thought it was a pity that engineers did not leave architecture alone when it was applied as a detail to any engineering construction. As architects they would be glad if such architectural forms as caps were omitted from iron construction, for it was very evident that it was not the proper treatment; and if engineers thought that engineering work could be made architectural by the application of architectural forms in the manner shown they were very much mistaken.

Mr. R. Moreland, in referring to the diagrams of the stanchions shown by the lecturer, said he would eliminate a great many of the forms from ordinary practice. In regard to fireproof construction, he thought that porous plaster was the best covering material, for it was more non-conducting.

Mr. R. J. Gifford Read said, in regard to the details of columns, he thought there were too many details shown. It was necessary for an engineer to know not only the theoretical forms which were necessary, but also the peculiarities of the trade—what could be got and what made. A knowledge of this kind sometimes resulted in a considerable saving in cost. With regard to the foundations of columns, the method shown on the black board had been largely adopted in Chicago, the city being built upon a morass, on the top of which was a layer of hard clay, 10 ft. thick. It was desirable not to break through that upper crust, and the foundations of a building were spread out so as to give as little pressure per square foot as possible. The same thing had been done in St. James's-square, where the site consisted of a thin layer of clay, with sand underneath. The foundations of the new buildings had to be taken down on to the stand, the old surrounding houses being built on the clay, which was thick enough to support them. The lecturer seemed to think that oxide paint was not of much use, and he stated that he used lead. He (the speaker) thought lead was a good substance to use, but he had had a good deal of experience with oxide paints, and when he came to analyse them he found that there were very few that were genuine. If they got good ferric oxide, well ground, and treated with linseed oil, it would adhere to the steel, not scale off, and it would go twice as far as the ordinary oxide He did not think the iron would rust unless the paint were porous. In regard to the relationship between engineering work and architecture, architects were in the habit of using materials which had been utilised for centuries. In designing in brick, or stone, or terra cotta, an architect frequently found difficulties in the execution of his work which were overcome by the use of iron or steel, as, for instance, where he had to carry the whole of his building over a shop, leaving the shop clear and perhaps a large open space behind. By making use of this modern material these difficulties could be overcome more easily and with less cost than if brick or stone were employed. He had heard architects condemn iron or steel construction, but surely it was of very great use to them in the erection of modern buildings if they used the material properly; it enabled them to span over large spaces, and it might be covered with terra cotta or plaster in a satisfactory manner, and it gave a strength not otherwise obtained. Iron or steel could not only be employed to assist in the construction of ordinary buildings, but it might also be legitimately employed as a decorative material, viz.: in roofs where it need not be out of harmony with the architecture. It was necessary for the engineer to learn something of architecture — more necessary perhaps than for the architect to study the dry scientific formulæ of the engineer.

Mr. B. F. Fletcher, in proposing a vote of thanks to the lecturer for the paper and for his admirable collection of materials and diagrams, said it was a subject of interest to architects, and especially to any one who had seen any of the exhibition building at Chicago or Paris. In regard to columns, which were not an iron feature at all, it would be better to employ stanchions instead, for that was a legitimate method of treatment in iron or steel. In this way, such abominations as Corinthian columns in iron could be avoided. The object of the engineer or architect should be to take the material for what it was worth, and if a simple form like a stanchion were used, they had something which was beautiful in itself. The roofs and galleries at the Paris Exhibition showed into what beautiful shapes stanchions could be made. He would like to know from the lecturer how the price of drawn steel worked out as compared with cast-iron? He got an estimate recently for some drawn steel work, but in consequence of the cost he had to make use of cast-iron. He would also like to ask if there were any objection to laying stanchions on stone beds without any fastenings whatever? This was done on a large building which he had seen lately, where the stanchion was laid on to the stone bed without any fastening, and tied on to the girder on each floor. In regard to fireproofing, they could not think much of a material that had to be covered up as iron needed to be, in some respects, and he did not think that engineers had much reason to congratulate themselves in regard to iron; it was a material which could not be exposed anywhere in a building that was to be fireproof, except in station roofs and exhibition buildings. That was the great drawback to its use in buildings of any architectural pretensions, because it was practically thrown away, and had to be plastered over. He did not understand the calculations of the lecturer in

* See the *Builder* for March 12, p. 253.

regard to foundations. When he, the speaker, was in Chicago he came to the conclusion that the American engineers did more or less what they liked, and he never could find an engineer who could satisfactorily explain the matter to him. In the *Daily Mail* offices on the Embankment the same difficulty as to soil had been met with. In regard to the formula shown upon the board by the lecturer, he, the speaker, hoped that a new formula was not about to be introduced. The formula which architects had learnt was $\frac{C\ ad}{L}$. Then, as to floors, and the difference between the American and the English practice. The lecturer had given them the ordinary Chicago practice of calculating for 80 lbs. per foot; but this was never done in England, where the weight would be never less than 1 cwt. per foot, and in the floor of a large building it would be from 1½ to 2 cwt. per foot. Architects were more or less advised by engineers in these matters, and he did not think that any English engineer would allow 80 lbs. per foot in a public building. In regard to the trough flooring, he had heard that it was not a success at the National Liberal Club. He would like to know more as to the value of concrete in conjunction with steel work. In designing steel floors, no notice was taken, apparently, of concrete, which must be of some use and some strength to the joists. The subject of roofs was of great importance to architects; it was astonishing what could be done with steel roofs having no ties, and he might mention the steel roofs which had been used at the Northampton Institute and Battersea Town Hall, which had very large spans and had no ties. In his opinion the development of steel in that direction was going to affect architecture. As to the relationship between architects and engineers, he thought that a great deal of work was undertaken by engineers which was legitimately architectural work, and he thought the designing of a steel bridge was properly architectural work. Of course he did not mean to say that the help of the engineer was not very necessary to the architect, but since engineers did not study form or beauty they should not be entrusted to erect buildings which might last for centuries.

Mr. C. H. Brodie briefly seconded the vote of thanks.

Mr. Mark Fawcett said that the lecturer mentioned the case of a column 7 in. in diameter and 14 ft. high, the safe working stress of which was 92 tons. He, the speaker, had been looking into that, and he found that, assuming the steel to be 30-ton steel—that was, capable of resisting a crushing load of 30 tons to the square inch—they got a crippling resistance of 18 tons to the square inch. The sectional area worked out at 20½ in., and if the safe load were 92 tons, then the factor of safety was about 4½; that would give, assuming that the crippling resistance was 18 tons to the square inch, a test load that would do no harm. The lecturer seemed to think that it was remarkable that the steel column that he referred to stood a stress of 180 tons, but in his, the speaker's, opinion, it was not at all remarkable, as the column had not anything like its breaking stress upon it. In speaking of eccentric loading, he understood Mr. Cunnington to mean that loading was eccentric unless it was equally distributed or central. In regard to the diameters of columns and their carrying capacity, he thought that they all knew that a column of equal sectional area would carry more if the diameter were increased, and they could easily ascertain what loads it would carry.

The vote of thanks having been put and carried unanimously,

Mr. Cunnington, in the course of a brief reply, said that in reference to the cast-iron caps, engineers did not profess to design them; they left that to the architects, but it frequently happened that they had to use cast-iron finishings for steel stanchions and steel girders, &c. In reference to the 7 in. column referred to by Mr. Fawcett, the safe load was nominally 90 tons, and it was tested up to half its breaking power. The great desire of engineers and architects was to work together in unison in engineering matters. The architect could not get away from the engineer nor the engineer from the architect. He had been a member of the Association for over twenty years, and it had given him great pleasure to come before them that evening.

The Chairman announced that the next meeting would be held on April 22, when Mr. H. B. Creswell would read a paper on the "Morality and Economy of Competitions."

The meeting then terminated.

THE LONDON COUNTY COUNCIL.

THE ordinary weekly meeting of this Council was held on Tuesday in the County Hall, Spring-gardens, Mr. T. McKinnon Wood (Chairman) presiding.

Loans.—On the recommendation of the Finance Committee it was agreed to lend the Islington Vestry 13,660*l.* for electric lighting, and 11,350*l.* for paving works, and 2,000*l.* towards the cost of purchasing Churchyard Bottom Wood, and the Wandsworth District Board 5,000*l.* for paving.

Fire Brigade Tenders.—The Fire Brigade Committee recommended that Mr. Kearley's tender, at 4,895*l.*, be accepted for the enlargement and alteration of the Battersea fire station; that none of the tenders be accepted for similar work at Hampstead, the work to be given to the Works Department; and, further, that none of the tenders for the erection of the superstructure of the Battersea river station be accepted, the same procedure to be adopted as in the last case and the work sent to the Works Department.

Mr. Boulnois, M.P., said it seemed that this Progressive Council was going to entirely alter the proceedings of the previous Council—to proceed on other lines than those laid down by the Moderates. No respectable contractor would take the trouble to go through the specifications and tender after the treatment they were receiving that day at the hands of the Council. He desired to raise his voice against this treatment of the contractors. It would be more honest if they were to say they would have nothing to do with contractors—that everything should go to the Works Department.

Mr. Burns, M.P., said from Mr. Boulnois' speech people would think that it was proposed to give the work to the Department although a contractor had offered to do it for a smaller amount. As a fact the Department's estimates were less than the lowest tenders. It was said that no decent contractor would tender for the Council's work, and it looked very much like it. In another case which would come before them directly one of the tenders was 55,000*l.* above the Engineer's estimate, and doubtless Mr. Boulnois would cheerfully vote for that contractor having the work. It was to stop that sort of thing this Council was elected. He was glad to know there was now a Progressive Council which could not be pulled up by water companies or contractors.

The recommendation was then agreed to.

Additions to Engine House, Crossness Outfall.—The Main Drainage Committee recommended, and it was agreed, that the estimate submitted to the Council by the Finance Committee be approved, and that an expenditure of 6,000*l.* be sanctioned by the Council in respect of the cost of erecting the superstructure of the addition to the engine-house at the Crossness Outfall, together with that of providing an overhead traveller.

Cripplegate Improvements.—The Improvements Committee reported that the City Corporation asked for a contribution from the Council towards the cost of the proposed improvements in Cripplegate, consequent upon the great fire. Two schemes had been laid before the Committee, one by the City authorities and the other by the Council's Engineer. The recommendation of the Committee was that, in the opinion of the Council, none of the schemes suggested for improvements in Cripplegate would, if carried out, prove to be of such general advantage to the through traffic in London as to justify the Council in contributing any part of the cost.

Sir J. Dimsdale moved, as an amendment, to add to the recommendation:—"But are prepared to discuss any proposal which in the opinion of the Council would lessen the danger of fire, and improve the through traffic of the Metropolis from east to west."

Mr. Shaw-Lefevre, Chairman of the Improvements Committee, said they had no objection to receiving further proposals from the Corporation. He would, therefore, accept the amendment.

After some further discussion the amendment was rejected by 56 votes to 46.

The Committee's recommendation was then adopted.

Enlargement of North Central Weights and Measures Office, Clerkenwell.—The Public Control Committee reported as follows, the recommendation being agreed to:—"The property has now been acquired for the enlargement of the North Central Weights and Measures Office at Clerkenwell, and the Architect has prepared plans for the building at an estimated cost of 3,950*l.* The estimate of the Manager of the Works Department for carrying out the work is 4,124*l.* To obtain tenders will involve delay, some considerable expense, and may very probably result in disappointment. Under these circumstances we are of opinion that the work should be intrusted to the Works Department. We do not anticipate that the amount (7,700*l.*) voted by the Council for the acquisition of the site and enlargement of the office will be exceeded. We recommend—That the work of the enlargement of the North Central Weights and Measures Office be executed by the Council without the intervention of a contractor, and that the plans, specification, quantities, and estimate of 4,124*l.* be referred to the Works Manager for that purpose."

Foundations, Bexley Heath Asylum.—Colonel Rotton, on the report of the Asylums Committee asking the Council to approve the excess of 7,923*l.* over the final cost of the foundation of the Heath Asylum at Bexley, pointed out that the matter was a serious one, because it involved a dispute between two officials—the architect, Mr. Hine, and the Works manager, Mr. Adams. The money, of course, had to be paid out of the ratepayers' pocket, but if a contractor had taken the work he would have had to pay the excess out of his own pocket.

Lord Dunraven said the matter was very important, and further information was necessary.

The report was adopted without further comment.

Greenwich Tunnel Works.—The Bridges Committee reported that two tenders were received in February for this work—viz., from Messrs. Mowlem & Co., amounting to 119,732*l.*, os. 4d., and from Messrs. Pearson & Son, amounting to 155,000*l.* When the Committee first reported on the question of the formation of the Greenwich Tunnel, they stated, on the advice of the Engineer, that the total estimated cost of the works amounted to 65,000*l.*, and that the cost of acquiring the land for the purposes of the scheme was 5,500*l.* When, however, the Bill was before Parliament, the Committee inserted clauses to meet the claims of those persons whose ferry rights were liable to be affected by the tunnel as well as those whose interests will be injured by the scheme. To meet these claims the Council will be recommended by the Finance Committee to include in one of its bills for this year a sum of 30,000*l.* With regard to the sum that should be fixed to meet the increased cost of the works, the Engineer advises that although his amended estimate is 83,175*l.* 3s. 10d., as against his first estimate of 65,000*l.*, he thinks an additional sum of 55,000*l.* should be added to the latter sum, making the total estimated cost of the works 120,000*l.* The revised figures of the estimated cost of forming the Greenwich Tunnel are therefore as follows:—Works, 120,000*l.*; land, 5,500*l.*; compensations, 30,000*l.*; total, 155,500*l.* The Committee recommended (*a*) that the Council do suspend standing order No. 32 with reference to recommendations of Committees involving capital expenditure exceeding 5,000*l.* (*b*) That the Parliamentary Committee be instructed to take the necessary steps for inserting a clause in the Council's General Powers Bill, 1898, authorising the Council to expend a further sum of 55,000*l.* on the works to be carried out in connexion with the formation of the Greenwich tunnel.

This was agreed to, with an addition, that, in view of the great increase of cost involved, the Council reserves to itself the right to re-consider the whole question before any tender is accepted.

Removal of Vauxhall Bridge.—It was agreed to invite tenders for the pulling down and the removal of the existing bridge at Vauxhall.

District Surveyor for Fulham.—The Building Act Committee reported as follows:—

"The Council decided on February 22 last, upon consideration of a report submitted by us relative to the conduct of Mr. Andrew Moseley in his capacity of District Surveyor for Fulham, to dismiss him from his office, and to request the consent of the Secretary of State, as required by Section 139 (1) (*b*) of the London Building Act, 1894, to such dismissal, Mr. Moseley having held his office before August 14,

1855. The Council suspended Mr. Moseley, as from February 22, until the matter of the dismissal should be determined; and appointed Mr. S. F. Clarkson, District Surveyor for North Chelsea, a temporary substitute to act as District Surveyor for Fulham during the pleasure of the Council. We have now to report that a letter, dated March 23, 1898, has been received from the Home Office, conveying the consent of the Secretary of State to the dismissal of Mr. Moseley, who is, therefore, no longer the District Surveyor for Fulham. We have under consideration the question, upon which we will report in due course, of what permanent arrangement should be made for the proper supervision of the district; and in the meantime the order of the Council appointing Mr. Clarkson as a temporary substitute in charge of the district will continue in force until the Council shall make a further order upon the matter.

Fire Brigade Tenders.—On the recommendation of the Fire Brigade Committee it was agreed that the supplemental estimate of 1,090*l.* to be submitted by the Finance Committee in respect of the erection of a fire-engine station at Lewisham be approved; that the tender of Messrs. Holloway Brothers to erect for 13,600*l.* a fire-engine station at Lewisham be accepted; that the estimate of 3,282*l.* to be submitted by the Finance Committee in respect of the erection of a sub-station at North Woolwich be approved; that the tender of Mr. E. Proctor to erect for 3,182*l.* a sub-station at North Woolwich be accepted.

The Council, after transacting other business, adjourned for the Easter recess.

BUILDERS' CLERKS' BENEVOLENT INSTITUTION:

ANNUAL DINNER.

THE twentieth annual dinner of this Institution was held at the King's Hall, Holborn Restaurant, on Tuesday evening. The chair was occupied by the President of the Institution, Mr. R. C. Foster.

After the loyal and patriotic toasts had been honoured,

The President submitted the toast of the evening, "The Builders' Clerks' Benevolent Institution." He remarked that the Institution was founded in 1866, and during those thirty-two years had pursued the even tenor of its way without performing any very great feat to bring it before the general public. It was founded in a way most consistent with the traditions of Englishmen—it was based upon the principle of self-help. Two or three gentlemen felt that the interests of their unfortunate brethren had not been sufficiently provided for, and thereupon set on foot an institution to grant pensions and relief to decayed clerks, their widows, and to make provision for their orphans. That the functions of the Institution had been properly carried out would be made clear when he told them that up to the end of 1897 it had been instrumental in paying out in pensions and temporary relief no less than 7,228*l.* Besides this, they had paid to the Orphan Working School, 789*l.* He must express his indebtedness to those kind friends connected with the building trade who had sent such munificent donations to the worthy objects of the Institution. He had made a calculation, and found that no less than 18s. out of every sovereign subscribed was available for the purposes of the Institution. A quantity surveyor remarked, in sending him a substantial donation, that that did not represent a tithe of the obligations which he felt was due from him and his profession to builders' clerks. "I feel," he continued, "indebted to them for a very large amount of the technical instruction and information which I have gained in my career." He (the Chairman) must also confess his own obligations to builders' clerks. For what technical knowledge he possessed he was, in a great measure, indebted to the builder's clerk and the builder's foreman. From the contractors' point of view there was no class of men more deserving than the builder's clerk. In the first place they were men who, in the nature of things, must be competent, hard-working, and clear-headed. The practical nature of their training accounted for the fact that there were so many successful and eminent contractors who had served as builders' clerks. They knew, also, that in London many of their most competent and successful quantity surveyors rose from that position. As a class, builders' clerks were always willing and ready; they were content to exist without a union, nor did they seek to bind, hamper, or harass their employers by trades-union methods.

Mr. J. Howell Williams then proposed the toast of "The Architects and Surveyors." He repudiated the slur Sir William Harcourt cast upon the architectural profession recently when the right hon. gentleman quoted, ostensibly to their disadvantage, the words of Byron, "The most recent is the least decent." He was convinced that if the Government, in spending the 2,500,000*l.* which they now had at their disposal for new public buildings, would only give the architects of to-day a fair opportunity, they (the architects) would be able to produce something that would falsify the meaning to which Sir W. Harcourt put the lines of Byron. There would be produced work worthy of the genius they had in the architectural profession to-day. At the same time, when they came to reflect, they could not help recognising how very difficult was the position of the architect. He combined in his qualifications not only art, but science, and owing to the introduction of steel he had further to combine with art and science a knowledge of engineering. But, after all, the architect's duty was to overcome difficulties, and to his credit he invariably did so.

Mr. E. T. Hall responded to the toast. Assembling as they did in the beautiful King's Hall, he would have been glad to have heard the toast responded to by their distinguished guest, Mr. T. E. Colcutt, who was not only responsible for the design of the building in which they were dining, but many others of equal merit and beauty. Architecture bore the same relation to building that the flesh and the soul bore to the skeleton of the human frame—it provided vitality to the dry bones of construction. As to the future of the profession, he was pleased to be in the position to be able to congratulate them that there were signs of abundance of work. Apart from the extensive scheme of public buildings foreshadowed by the Government, numerous public bodies in the kingdom contemplated buildings of a character which would, to use a familiar phrase, bring grist to the mill. It was gratifying to note that not only on the part of public bodies was there a growing appreciation of architecture, but also on the part of private individuals who now desired, much more than formerly, to aspire to the beautiful in architecture, even in their residential buildings. They were very often reminded of the beauties of Italian and French architecture—and beautiful both were, certainly—but they had no cause to be ashamed of the specimens of architecture in this country. To his mind there was no building in the world of its class and character that could be called superior to St. Paul's Cathedral, nor was there a tower or spire in the world better than that attached to Bow Church, in Cheapside.

Mr. F. S. Oldham (Perry & Co., of Bow) proposed "The Builders," and expressed gratification that provincial builders were now extending more help than formerly to the funds of the Institution.

Mr. J. Howard Colls acknowledged the toast. He reminded them that builders' clerks, by the very nature of their work, had to take the keenest interest in their employers' undertakings. They were not engaged in buying and selling things which were here to-day and gone to-morrow, but in arranging and perfecting schemes which had to stand the test of time.

"The Merchants" was given by Mr. E. B. Gammon and acknowledged by Mr. Alsop; "the President," by Mr. Leonard J. Matom, and "the Past Presidents" by Mr. H. W. Parker.

The Chairman announced during the evening that 480*l.* had been subscribed by the guests towards the funds of the Institution. Among the largest subscribers were the Institute of Builders, English Bros. (Wisbech), J. Mowlem & Co., G. Farmiloe & Sons, and Joseph Randall, ten guineas each; Carpenter & Co., Eastwood & Co., W. Oliver & Sons, Nobles & Hoare, Slater, Birds, & Co., T. M. Rickman, B. J. Hudson & Sons, T. Lampard Green, Dent & Hellyear, five guineas each.

"THE STUDENT'S COLUMN."—Owing to the pressure of other matter, we are compelled to hold over until next week our usual "Student's Column" article ("The Calculation of Strength of Materials and Resistances"). Two chapters will be given in our next issue.

APPLICATIONS UNDER THE 1894 LONDON BUILDING ACT.

AT the meeting of the London County Council on Tuesday, the Building Act Committee brought up the following list of applications under the 1894 London Building Act. Those applications to which consent has been given are granted on certain conditions.*

Lines of Frontage.

Fulham.—Buildings on the sites of Nos. 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37, 39, and 41, Harwood-road, and also on the site of stabling at the south end of that road, at the corner of Moore-park-road. (Mr. F. Matcham for Sir J. Johnson).—Consent.

Kensington, South. — Buildings, with one-story shops in front, on the south side of Old Brompton-road between No. 38, Sussex-place and No. 12, Sumner-place. (Mr. W. H. Collbran.)—Consent.

Bermondsey.—A staircase block at Snowsfields school on the east side of Kirby-street (Mr. T. J. Bailey for the School Board for London).—Consent.

Width of Way.

Lambeth, North.—Two two-story bay windows in front of proposed new offices at No. 47, Belvedere-road, Westminster Bridge-road (Mr. E. T. Hall for Messrs. Eastwood & Co.).—Consent.

Line of Fronts and Width of Way.

Peckham.—A building on the north side of Elmgrove, Rye-lane (Mr. P. Moses for Mr. S. Sayer).—Consent.

Artizans' Dwellings.

Paddington, North.—That the Council do, in the exercise of its powers under Section 42 of the London Building Act, 1894, disapprove and refuse to sanction the plans, dated March 15, 1898, delivered by Mr. H. Gundry for Mr. H. Ward, of a building not abutting upon a street, and adapted to be inhabited by persons of the working class, such building being shown to have stabling on the ground floor at the rear of Nos. 417, 419, and 421, Edgware-road, and an entrance through the ground floor of No. 118, Hall-place.—Agreed.

Means of Escape at Top of High Buildings.

Westminster.—That the Council, in the exercise of its powers under Section 63 of the London Building Act, 1894, do grant a certificate in respect of the means of escape, in case of fire, proposed to be provided for the persons dwelling or employed in the two topmost stories of the Institution of Mechanical Engineers, Storey's-gate, Birdcage-walk (Mr. A. Bache, for the Institution).—Agreed.

COMPETITIONS.

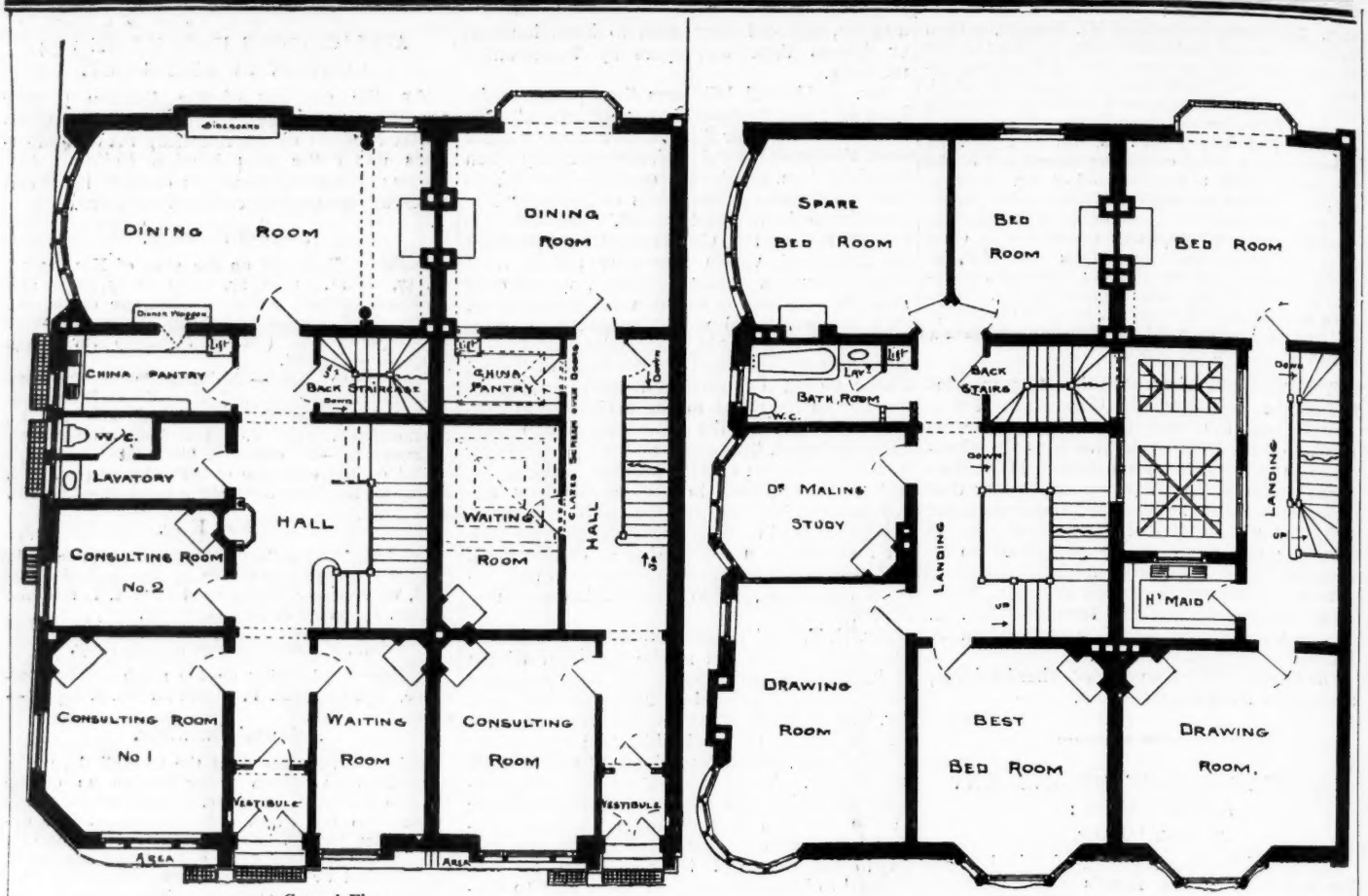
FYLDE WORKHOUSE, KIRKHAM, LANCASHIRE.—At a meeting of the Fylde Board of Guardians at Kirkham recently, the question of appointing an architect to carry out the building of the new workhouse was discussed, and it was decided to entrust the work to Messrs. Haywood & Harrison, of Accrington, whose designs were placed second in the recent competition. The new workhouse will accommodate 300 inmates, and in addition to the ward pavilions for all classes, a large infirmary will be provided, and an isolation hospital for infectious cases. In his award, the assessor (Mr. Kirby, of Liverpool) placed first the plans of Messrs. Crickmay & Sons, London.

ARCHITECTURAL SOCIETIES.

EDINBURGH ARCHITECTURAL ASSOCIATION.—The members of the Edinburgh Architectural Association visited the Museum of Science and Art on the 26th ult., by permission of Sir R. Murdoch Smith. The Curator, Mr. D. J. Vallance, who conducted the party, gave a general description of the building, the dates and methods of its construction, the precautions taken against fire, the heating arrangements, and the workshops. At the conclusion of the visit, Mr. Thomas Ross, President, in moving a vote of thanks to Mr. Vallance, said he hoped full advantage would be taken by students of the fine scientific and artistic collection.

RESTORATION OF THE CHURCHYARD CROSS, MELBURY BUBB, DORSETSHIRE.—The Churchyard Cross at Melbury Bubb has been restored. The shaft had disappeared, and all that remained was the ancient base, decayed and rotten. The whole of the restored cross is of stone from the quarries at Portland, and the work has been carried out by Messrs. Harry Hems & Sons, of Exeter.

* Names of applicants are given in brackets. Buildings are new erections unless otherwise stated.



Ground Floor. First Floor.

Doctors' Residences, Birmingham. Plans.

Illustrations.

STATUES AT THE ROMAN BATH, BATH.

THE eight statues illustrated here, the work of Mr. G. A. Lawson, are set up on the pedestals of the balustrade above the colonnade with which Mr. Brydon has surrounded the Roman bath at Bath. As stated on the lithograph, the statues are all to the same scale, but those at the side of the bath, owing to difficulty of access, could only be photographed to a small scale, and we have preferred to keep the others to the larger scale rather than reduce them to match, on paper, the side statues.

The statues stand round three sides of the bath; two of those given on the large scale being at one end, the other two at the opposite end, while the chronological sequence is kept up by the group of side statues; the whole series commencing with the statue of Cæsar and ending with that of Constantine. The others represent emperors or generals who were engaged in the conquest and occupation of Britain under the Romans, viz., Claudius, Vespasian, Ostorius Scapula (general), Suetonius Paulinus (general), Agricola (general), and Hadrian.

The re-entering angles of the balustrade are emphasised by terminal figures planted at an angle of 45 deg. with the axial line of the structure.

DESIGN FOR A SUBURBAN CHURCH.

THIS design was submitted for a proposed new church in a London suburb.

The neighbourhood is not a wealthy one, though there are many well-to-do families and retired tradesmen in its midst. The present church is a small and extremely inconvenient building, and a chapel of ease to the parish church. It was proposed, however, to make an independent parish and to erect a large church, the number of residents having increased greatly of late years.

The plan shows accommodation for about 900 worshippers, with a morning chapel, vestries, and a choir-practice room under the vestries.

The chancel apse is lighted by tall windows, recessed in an arcade inside, which imparts dignity and grace to the vista inside. These windows are carried on, on both sides of the nave, as a high clearstory.

The baptistry (in the tower) is raised a little above the floor of the church, in order to be well in view of the congregation.

An approximate estimate for the building amounted to between 10,000*l.* and 12,000*l.*, but the drawings being incomplete, there were not sufficient data for an accurate estimate.

E. B. LAMB.

DOCTORS' RESIDENCES, BIRMINGHAM.

THIS block of building, consisting of a pair of doctors' residences, is situated at the junction of Newhall-street and Cornwall-street, Birmingham, the corner one being occupied by Dr. Malins, for whom the buildings have been erected. The ground floors are devoted principally to consulting and waiting rooms, with dining-rooms in the rear, and serving and lift rooms adjoining. The first floors contain the drawing-room, studies, &c. The elevations have been carried out with red brick facings and buff terra-cotta dressings. The architects are Messrs. Essex, Nicol, & Goodman, of Birmingham; and the builders Messrs. Thos. Lowe & Sons, of Burton-on-Trent.

THE LLEWELLYN ALMSHOUSES, NEATH.

THESE almshouses have been erected by Mrs. Llewellyn, of Baglan Hall, Glamorgan, to accommodate eight inmates; each having a separate house. There is also a common room, or kitchen, with a washhouse adjoining, together with the caretaker's sitting-room and bedroom on the first-floor. Each house comprises a sitting-room with its ingle nook, bed alcove, and small scullery. The rooms are oak-panelled throughout; the rafters and boarded ceilings are of the same material, which is used for all internal fittings. The whole of the external woodwork is of teak. The houses are built of Ruabon bricks, with red Carlisle stone dressings. The roofs are covered with Ruabon tiles.

The work has been carried out from the designs and under the direction of Mr. George E. Halliday, architect, of Cardiff.

GROVE HOUSE, CHISWICK.

THE historical property known as "Grove House, Chiswick," has lately been purchased from the Duke of Devonshire by Colonel Shipway, who has spared no expense to restore the house to something like its ancient splendour.

The Grove House Estate belonged, *temp.* Henry IV., to one Robert Warner, and then for many generations to the Barker family. On the death, in 1745, of Henry Barker, it was purchased by the Earl of Grantham, our Ambassador to Spain in 1771, who laid out its once beautiful grounds and garden. He died in 1786, and the property passed to his daughter, Frances, after whose death it was bought by Humphrey Morrice, who added to the house and built a riding-house. Morrice bequeathed it, 1790, to Mrs. Luther; she sold it to the Rev. Robert Lowth, from whom it was acquired by William, sixth Duke of Devonshire. In T. Faulkner's "Chiswick," 1845, is a woodcut of the house by F. H. Wilson, which shows it as having two wings, of three floors and a basement, between which is a tetrastyle portico, with Ionic columns and angle-pediment. The late Edward Walford, in his "Greater London," says that the Duke of Devonshire removed the top story of the house. The grounds, about 80 acres in extent, have lately been laid out for villa residences, and we believe that Messrs. Palgrave & Co. were retained as architects and surveyors for the work. Morrice's collection of pictures were bought by John, second Earl of Ashburnham.

The photographs which we reproduce give a view of the front of the house with its portico, and the interior of the dining-room, which is one of the most effective rooms in the house, and the only one in which the old decorations remain intact.

In the drawing-room a great deal of new work has had to be done. This was at one time panelled in oak, but none of the old decorations remain except the ceiling and cornice, and the chimney-piece, the entablature of which is supported by jambs with caryatides. This room has been lavishly decorated in Louis XIV. style, and panelled in blue silk, specially copied in design and colour from old Louis Seize brocade, and woven by Messrs. Warner, of Spitalfields. The decorative work to the walls being carried out by Messrs. G. & A. Brown, of Newman-street.

The entrance hall of the house has been enlarged and improved by the insertion of a fireplace, with oak chimney-piece, and ornamented after the Flemish school with Dutch tiles in the panels. The oak dado which surrounds the hall formed part of the reproduction of the old burgomaster's house at

Antwerp, erected in the late Antwerp Exhibition.

A modern and perfect system of sanitation has been applied to the premises, and extensive stabling and orchid houses erected.

The alterations and re-decoration have been carried out under the superintendence of Mr. H. M. Newlyn, architect; the contractors being Messrs. Killby & Gayford.

THE ARCHITECTURAL ASSOCIATION: DISCUSSION SECTION.

THE tenth meeting of the present session of the Discussion Section of the Architectural Association was held at 56, Great Marlborough-street, on the 23rd ult.,* Mr. Matt Garbutt, Chairman of the Section, in the chair. The paper of the evening was entitled, "Approximate Estimates for Buildings," and was by Mr. Henry J. Leaning, who commented on the vagueness of the ordinary methods of making preliminary estimates, illustrating his argument by the evidence given before the Parliamentary Committee on the Admiralty Buildings, in which the professional experts altered their opinions and contradicted themselves and each other frequently. He emphasised the difference between cubing preliminary sketches and cubing from finished drawings and specification. In the first case it was merely an allowance made to cover future developments. Buildings of the same plan and, practically, the same elevation, might be made to vary in actual cost by 4d. or 5d. per foot, perhaps. It was essential to know what the lowest limits were, and adhere to them. He saw no reason why the assessor in a public competition should not be allowed to state the lowest price or allowance per foot cube he would entertain. At some stage of his duties he was bound to settle this rate, and he was obliged to reject designs because he thought that, although by careful management the buildings might be built for the amount stated, to build them for the price, in a manner worthy of the undertaking, would be impossible. Estimating from finished drawings and specifications required, of course, greater skill. Mr. Leaning demonstrated at considerable length the fallacies of cubing, and insisted upon the necessity of a more systematic method. He advised the elimination of roof foundations and façade, and other items, such as staircases, heating, lighting, sanitation, fittings, &c. He gave for special treatment, data for these latter obtained from actual practice, and suggested the interchange of such information among architects for the benefit of the profession. Having treated these disturbing elements separately on their merits, Mr. Leaning then propounded certain mathematical rules for obtaining the rates of variation in the price per foot of the remaining part of the building, that is the part between the lowest floor level and the roof plate. He had determined from actual examples certain prices for this part of the work, and had constructed a table based on the areas of the rooms and the heights of the stories for buildings of different sizes. The supreme advantage of such a table, he said, was the possibility of its universal application to all classes of buildings alike, from a factory to a hotel. The system also enabled an architect to work to the allowance per foot cube previously made, which under the present method was not possible. He explained the saving of time effected by using such a table, and maintained its equal accuracy to the taking out of rough quantities, as was usually done when a close estimate was required. He then dealt briefly with the effect of the fluctuations caused by rises in wages or materials, difficulty of access, open tenders, or tenders by selected builders, &c. With regard to the latter he was of opinion that—in spite of cases of wide variation which sometimes occurred—the prices which ruled for the same class of work in competition did not vary by more than 5 or 10 per cent.

PROPOSED TECHNICAL INSTITUTE, SELLY OAK.—It has been decided to erect a new technical institute for Selly Oak, and a site has been secured at Bournbrook. The building will include necessary class-rooms, reading-rooms, and a central hall for concerts, lectures, &c. Mr. B. V. Hirst, of Birmingham, is preparing the plans, and the cost is estimated at 3,000*l*.

* The report of this meeting was sent to us too late for insertion last week.

THE ROYAL INSTITUTE OF BRITISH ARCHITECTS:

ARTISTIC COPYRIGHT.

A SPECIAL general meeting of this Institute was held on Monday evening, at No. 9, Conduit-street, Regent-street, Mr. Alex. Graham, F.S.A., Vice-President, occupying the chair.

The Chairman moved: "That in accordance with a recommendation of the Council, Professor Aitchison, R.A., be requested to allow himself to be nominated as President for the year of office 1898-99, and that consequently by-law 26, which limits the duration of the Presidential term of office to two years, be suspended."

The notice was seconded by Mr. John Slater, and carried unanimously.

A meeting to confirm the resolution for the necessary suspension of the by-law will be held on April 18.

An ordinary general meeting was then held, Professor Aitchison, R.A., presiding.

The minutes having been taken as read, M. Georges Harmand, Avocat à la Cour d'Appel, Paris, read a paper on "Artistic Copyright, with special reference to Architects."

M. Harmand said that one of his objects was to give an idea of the state of opinion on the Continent regarding the question of copyright. Over the greater part of Europe architects enjoyed protection for the works they created, and it was of greatest importance that the profession in England should have the same privileges. Unity in the protection of their art was the best means to its development and its triumph. The fact that for a long period architects had not claimed copyright in their works was no reason against the right. There was ample evidence to show that from remote ages architects had been accustomed to put their names, or to leave some other trace of their personality, on the monuments they erected. Instances of the custom were cited by the lecturer from a paper read by M. Ch. Lucas at Milan in 1892. Years before any other European country, England had made laws for the protection of artists and authors. Till quite recently, however, the reproductions of architects' designs for publication was an expensive matter, and only monographs of a few very important buildings or the works of a few very great architects had been published. In the present day it was easy for architects to get full reproduction of their works, and for the sake of their own memory, their credit, and their fame, they should strive to secure the preservation of their drawings and the guarantee of their authorship. In England the rights of artists in reproducing their works by printing processes were protected by statute, architectural drawings being expressly mentioned; but English architects apparently lacked confidence in their rights, and hesitated to claim the protection the law afforded them. The question of unification of the legislative measures relating to copyright had been well thrashed out at congresses held by the International Literary and Artistic Association at various cities in Europe; and, as a result, a Convention was agreed upon at Berne, in 1886, between Great Britain, France, Italy, Spain, Belgium, Germany, &c., which provided for the grant of copyright to, among other works, drawings and works of painting and sculpture, to engravings, prints, &c., and to "plastic works relating to geography, topography, architecture, and sciences in general," also to any production belonging to literature, science, and art capable of reproduction by printing, &c. But the law of some nations party to the Convention did not fully protect architecture. In Germany an architect enjoyed copyright in his designs so long only as they exist on paper; he lost his rights in his drawings as soon as a building was erected from them. In Great Britain, the lecturer understood, architecture was not protected by law, except for drawings and plans. Conferences had been held all over Europe by the Association above referred to, and strenuous efforts made to secure full protection for architecture. Having dealt with the object of copyright, its privileges, the class of work whose authors were universally admitted to be entitled to the right, the lecturer went on to show that, by their methods of work and the nature of their inventions, architects were in a similar position to painters, sculptors, and other artists, and should be conceded the same safeguards for their protection. Quoting judgments of French and Belgian legal tribunals, emphasis was laid on a recent decision at Antwerp, where it was held that, in order to be considered the author of a protected work, it was not necessary for a man to produce a work entirely original in all its parts; it was sufficient that he had made a design, traced a drawing and plan, and infused his own individuality into elements gathered from works whose copyrights had expired. Such was an artistic creation which merited the protection of the law. The lecturer then touched upon the arguments adduced against the rights contended for, and having shown their unsoundness, proceeded to treat of the relations between the architect and his employer. The architect furnishes plans and drawings, and agrees with his client for their reproduction in a building on a certain site. Such plans and drawings represent the original work of the architect. The client bargains for the possession and use of the building, and the enjoyment of its beauty, if it have artistic qualities. But, the lecturer contended, the right of reproducing the building on paper, by drawing, photography, or printing process, did not pass to the client, but remained in the architect. If the client desired in any way to reproduce his building pictorially by engraving or other process, the architect could consent, for an agreed consideration, or he could refuse. The client, again, had no right to the original drawings, but only to copies, and this was sufficient to warn the client that the architect intended to keep the copyright for himself. The drawings handed to the owner should show some evidence of their being copies merely, and should bear the architect's signature. The owner had no right to repeat the building on any other site, or to permit any one else to do so. The architect received fees calculated on the cost of the one building only. Repetition could only be made with the architect's sanction, and, if repeated, he was entitled to fresh fees. It was important for the preservation of his rights that the original drawings should bear the architect's signature. His signature could not well be preserved on the buildings themselves, but as they were mere reproductions of his drawings, his interests would be sufficiently safeguarded by the signature being placed on the original drawings, and any copies, prints, or photographs of them. An architect could always print reproductions of his drawings under his own name; but the client had no more right to make prints or photographs of his buildings without the architect's consent than to repeat the buildings on another site. In concluding, the lecturer expressed his conviction that when architects felt that they could work and create for their profit, and have the reward of their pains and efforts, they would strive more after genuineness, and architecture as an art would progress, to the greater glory of beauty. If architects in Great Britain did not enjoy such rights in their creations as the lecturer had advocated, he hoped they would do their utmost to prevent the matter being overlooked in any new Copyright Act.

Professor Kerr said he was happy to propose a vote of thanks to M. Harmand for his very suggestive paper. If they looked at it as an academical argument, it was full of information and full of suggestiveness with regard to other subjects than the particular subject which was professedly in view. If they in this country asked for anything in the nature of architectural copyright, it would be of very great service to them in the way of establishing a claim upon public attention. There was a great difference between the appreciation of architecture in the country to which their friend belonged and its appreciation in this country of ours. They must never forget the radical racial difference. The Latin race seem to be possessed of the faculty of art in a way which the Teutonic nations could not pretend to; and, therefore, when their friend spoke of the architect's "glory," they were bound to tell him that the architect's glory would not be recognised in the English courts of law; and even architects' copyright, if it could be practically established (he thought it could be and had been established by their lecturer academically) would fare very badly at the hands of forensic gentlemen, who were disposed to put forward all their strength in examining an architect as to the points in which he claimed to have his copyright. The difference between architecture and the other matters to which the lecturer had referred was very considerable. The view that would be taken of architectural copyright in a court of law might be this: The lawyer would say that what the law of England—it being founded on com-

mon-sense (and the common-sense of the multitude as distinguished from the common-sense of experts), what the law of England recognises as the subject of copyright, of patent rights, or of any protection of any sort, is "commercial value" and nothing else. "Show me," he would say, "what damage you have sustained in pounds, shillings, and pence, and then I will tell you what I think of it. But if you have only suffered damage in respect of self-appreciation, of *amour propre*, I am afraid the jury will not understand it," and there they would be. One argument that the lecturer put before them was certainly a very ingenious one if it were not a legal fiction; he insisted upon the architectural artistic merit being that of the drawing and not of the building. That seemed to him to be quite a new idea, and he did not think it was a correct idea, or an idea that would be recognised in courts at all, because they had had it before them in a somewhat, though not very, different form, when the question of the ownership of drawings was exhaustively argued, and all the judges were decidedly of opinion from their point of view that that which the architect supplied to his client in consideration of payment was his best services in designing, and that the paper drawings were the record of those services; thus it was that they declared that the paper drawings could only belong to the employer; that he was the proprietor of the results of the architect's services, and those results were the drawings. Now he personally was of opinion that they would never shake that conclusion; but they might try, and one way in which they could try was to bear in mind the distinction that M. Harmand had drawn between a work of art as represented by the drawing and the reproduction of it, as he said, in the building. It appeared that in the German law, so long as the architect had not reproduced any building, had not carried out the drawings, he was protected, and enjoyed copyright; but as soon as he had erected a building he lost his right. That told a tale. Architectural drawings were protected in this country, provided they registered the paper work and paid a fee. But this fact, that by the German law the architect possessed copyright until he erected a building, was not quite what we had here. He supposed it was very much the same thing, and it was all the copyright that they should wish to have. As to patents, a patent was a monopoly of a saleable article which was granted to the inventor of that article in consideration of his making his invention known to the public. This would militate against the German idea if that claim applied to the question of architectural copyright, because, according to the primary notions of patent rights, the right only came into view when the patent was openly and clearly divulged to the public for the benefit of the public. Therefore, they did not advance the matter at all by drawing a comparison between patents and copyrights. A patent obviously only applied to something useful in the saleable view of the case, something which was to be protected as a property producing revenue. There was one very good principle which had been distinctly precluded in this country. An architect drew his designs, and agreed with his client for the reproduction of them on a site belonging to him. The drawings of the architect represented the original work of the architect. But what M. Harmand meant was that the owner of the building was not entitled to reproduce the work in the form of another building. He was afraid they would never get that principle into the English mind. It would be thought a monstrous idea that if a man built a house in the country, and his friend asked him to let his builder copy it, he should not be at liberty to say yes. There was, however, one respect in which they could all feel that something like copyright was the architect's due. When an architect was employed to design a house, and found that two or three house agents in the neighbourhood had sent emissaries at a fee of 5*s*. apiece to copy the design of that building and reproduce it all over the neighbourhood, there, he thought, something might be done.

Mr. Slater said he had much pleasure in seconding the vote of thanks. It did seem a little bit absurd that the painter who painted nothing but a portrait or a view could claim copyright in that painting, while an architect, who was only obliged to put down his design on paper because there was no other way of getting it carried out, should not have copyright for his own building. The decision which Professor Kerr had quoted, that the drawings which an architect made became the property of the client because those were what he was paid for, seemed to him the more absurd the more one looked at it; and, if it were carried to the logical conclusion, the only thing to do would be for architects to make their drawings so bad and so simple that no one would care to have them. And if they did that often enough, they would convince clients that it was not the drawings that they were paid for, but the design of the house. Professor Kerr had said that the reason an architect could claim copyright in his production was because he had produced something that was saleable. After all, did not the architect do that in his building? Was not a building just as saleable as a picture? And was not that the architect's work just as much as the mere drawing put upon paper?

Mr. John Hebb said that it would be useless on the part of architects, in view of the decision as to property in architects' drawings, to attempt to set up any claim to copyright in design. Moreover, he thought it was very doubtful whether architects as a body would desire it. As a rule, they felt gratified when their designs were imitated or copied.

Mr. E. W. Mountford asked the lecturer if he knew whether the firm of English architects who had gone so far as to patent a design of theirs were satisfied with the result.

Mr. E. W. Hudson said that M. Harmand had paid them the compliment of supposing that they were all desirous of obtaining copyright of their drawings, but there might be some who for sentimental reasons might not really be so anxious for it. They were, more or less, borrowing the ideas of those who had gone before, and, therefore, might feel that it was only fair that they should, if they were inspired with anything at all worth looking at, give it freely, as they had freely received from the past. M. Harmand congratulated them on being the first country in Europe to arrange for copyright; but he thought the general opinion was that they had followed the French in establishing any design rights at all; and it would be quite as well, if they had copyright at all, if they adopted the very simple and sensible arrangement of the French for securing it. As to what architects had done in the matter of copyright, many there would remember how in 1877 there was a Royal Commission sitting on this question, and the then President of the Institute, Mr. Charles Barry, was asked to give evidence on the matter — but not before the Council had informed the Commissioners that architects wished to be heard on the subject. Mr. Barry made a very strong stand. His proposal was that the right to reproduce a building should be reserved to the architect for twenty years, and any reproduction in the whole or in part to any scale, whether by the original client or any other person, should be forbidden. But the Commissioners' report the next year practically refused to entertain the proposal, and suggested nothing at all for the benefit of architects. But there was one difficulty in regard to their handle over their drawings. The original drawings were the contract drawings; they were signed by the builder, and therefore they were part of the contract; and it seemed to him that it was not quite the thing to suppose that they could claim them. Then, again, the artist stood on a different footing: he produced his pictures himself entirely. Their drawings were made in the office, not entirely by themselves, but under their direction. In fact, he was afraid that the law of copyright was in such an uncertain state that it was difficult to tell whether a remedy did or did not exist in the matter of designs being repeated. The Act which regulated the matter at the present time secured to them the right of copying, engraving, and multiplying their designs in the same way as other artists for the term of life, and to their successors for seven years after, and the forfeit of any contraband copies and a 10*l*. penalty, but the words "architectural designs" did not appear at all in that Act. The only reference to architectural design in the Act was, he thought, a footnote by the editor in publishing the Act for the use of the public, in which he said "an architectural design is protected under this word." The main point, he thought, for them to consider was, were they satisfied with the law as existing, or did they really desire radical amendments.

The Chairman said there was one difficulty about architectural copyright in small buildings particularly. There was a scale of payment for small buildings, which required a great deal of consideration and a great deal of design, was quite disproportionate to the time and skill expended upon them. They certainly would like to have these things protected. He spoke of such things as small labourers' cottages, built either singly or in pairs. It did seem rather hard that, when a man got a mere nominal sum for doing a single labourer's cottage or a pair of them, the owner of those cottages should be able, not only to copy them all over his estate without paying a single thing for them, but that he should also be able to lend or give the designs to all his friends and neighbouring landowners. But the real difficulty in the way was this, that it was very easy to make such trifling alterations as might take them out of the law of copyright and leave the architect helpless in the matter. There was one thing to be observed in regard to the general discussion: that drawings were quite a late invention. Every considerable building from the sixth to the eighteenth century had been built from models. He did not say that drawings were not used as an aid to the architect, but they were judged by the model. It had been said that it was difficult to know what damage could be done to an architect by his designs being copied by another. He thought that the damage was two-fold: in the first place, if another had been employed, instead of the original architect, the latter had lost the remuneration that he could have earned on being employed; and, secondly, nobody was well reproduced when he was copied by another who had not his thought and skill.

The Chairman announced that the next ordinary meeting will be held on the 18th inst., when Mr. Alexander Paterson will read a paper on "Domestic Architecture in the United States."

The meeting then terminated.

SANITARY INSPECTORS' ASSOCIATION.

AT the meeting of this Association, held on the 2nd inst., at Carpenters' Hall, London-wall, a paper on "Sanitation in the Homes of the Working Classes," prepared by Mr. T. J. Moss Flower, Surveyor to the Portishead Urban District Council, was read by the Chairman, Mr. G. T. Dee (Westminster). Working class homes in small urban and in rural districts were very frequently insanitary, said the lecturer, from defective roofs of thatch, the nearness of cesspools or pigsties, absence of drains, absence of water supply other than shallow wells, and defects of construction. Many small houses had no open space, but a tiny fore-court, with no back outlet, and others were built back to back. Even in larger houses, containing five or six rooms, which had a small court or garden in the rear, these were often crowded with fowls, ducks, rabbits, and other live stock, kept in an uncleanly state. Such houses were frequently built in almost interminable rows on both sides of a narrow street with no break for hundreds of yards, and where there could be no proper circulation of air. Another class of insanitary house frequently found was the old house, formerly occupied by some wealthy tenant, but now let in tenements to seven or eight different families. Far too many people were crowded into a given area in working-class neighbourhoods, even where the buildings were of a better type or of better construction; and in the centre of towns rents were often so high that working families were compelled to herd together and huddle themselves into the smallest possible space. The most prolific causes of overcrowding were, in the lecturer's opinion, defective land laws, the absence of by-laws and building regulations at the time the houses were built, and the apathetic administration of such by-laws in many districts where they did exist. Sanitary inspectors could not do much in a direct way to remove these leading causes, but they could effectively help by seizing every occasion of pointing out the existence of these evils. Wherever they found gutters and downspouts choked, drains cracked, leaky, or choked, sinks untrapped, closets in wrong positions, unflushed or unventilated, rooms without fireplaces, with walls and ceilings dirty or damp, walls built of soft bricks, or with bad mortar and without damp-proof course, let the facts be proclaimed unceasingly. A special evil in rural districts was the practice of em-

ploying a single inspector at, perhaps, only 50*l.* a year, to look after thirty or forty parishes, or putting under his sole charge from 6,000 to 10,000 houses, and at the same time compelling him to keep an elaborate set of books, attend committees, and run about to secure information for the medical officer of health, and all this with not unfrequently a threat hanging over his head of being turned out of his office for being over-zealous. It was the bounden duty of the sanitary inspector to help those who could not help themselves, which was the case with the working classes generally, to whom their willing services should be available at all times. Those who preached the "gospel of health" should live the "gospel of health," and should conscientiously and fearlessly carry out their duties, even when it was necessary to withstand tyranny or risk the loss of their means of existence.

A vote of thanks was then accorded, and a discussion took place, in which Mr. W. W. West (Walthamstow), Mr. Chapman (Fulham), Mr. Thomas (Bermondsey), and other members took part.

Correspondence.

To the Editor of THE BUILDER.

SEWER VENTILATION.

SIR,—I find your reference to my little pamphlet "The Sanitary Problem from the Sewer-Gas point of view," is being misunderstood. You begin with the phrase "The ventilating of sewers by means of inlet-grates at the street level and high extracting shafts," and further on comes the clause which says that my pamphlet "is intended to prove that this method of ventilation is a farce." I see no reason to object to the word "farce" so long as the high shafts only are intended, but if it is taken as describing the position I take with reference to the street-level gratings, it is entirely misleading. On page 6 I describe the latter as the "best means of effecting natural oxidation," and at page 14 my position in the whole matter will be seen when I say "free natural oxidation to the utmost possible, with auxiliary artificial oxidation wherever necessary (is) a sound principle of sewer ventilation." And, I may add, this is no mere statement of an opinion. It is based on a fact which is being demonstrated at Sutton, Epsom, Edinburgh, Fulham, &c., in ordinary every-day work.

WM. BROWN.

BOOKS RECEIVED.

SANITARY ENGINEERING. By W. Paul Gerhard, C.E. (New York: Published by the Author.)

DISPOSAL OF REFUSE FROM THE CITY OF LONDON. By G. Lister Sutcliffe. (London: Hodgetts.)

THE NEW YORK FIRE DEPARTMENT. By Hugh Bonner. (London: C. & E. Layton.)

SOCIETY OF ENGINEERS. Transactions for 1897. (E. & F. N. Spon.)

OBITUARY.

MR. T. A. SKELTON.—The death of Mr. T. A. Skelton, architect and surveyor, Southampton, occurred at Birlington, Shirley, on the 25th ult.

GENERAL BUILDING NEWS.

BRADFORD PARISH CHURCH RESTORATION.—On the 26th ult. the members of the Bradford Historical and Antiquarian Society visited the Bradford Parish Church to inspect the work of enlargement and restoration now being carried forward. At the request of the Society, Mr. T. H. Healey (architect), whose firm has charge of the work of restoration, gave an outline of the history of the church, and also of the proposed works. Referring to the work now in hand, Mr. Healey said that it was proposed to erect new vestries for the clergy and choir, and a large room for storing the numerous documents and books connected with the parish church. These erections would be on the north side of the Leventhorp Chapel. It was intended to retain the old masonry wherever possible, but some of it was so bad that it would need to be replaced by new stonework. North and south transepts would also be erected, these being necessitated by the removal of the two galleries. The south aisle and roof, put up in 1832, would be replaced, in character with those on the north side. As much as possible of the ancient woodwork of the north aisle roof would be retained, but it was not proposed to touch the chancel roof, except to fill up the panels with decorated work. The font would be removed from under the tower, and placed in the south aisle. The visitors, under Mr. Healey's guidance, made the round of the building. An interesting feature which came under notice was the original opening to the staircase leading to the ancient rood-loft which in pre-Reformation times spanned the chancel arch. Upon this loft was formerly placed a crucifix fronting the congregation. The lower entrance to the staircase was from the north wall of the Leventhorp Chapel, and by the removal of the organ can now be clearly seen. As it is not proposed to interfere with this portion of ancient masonry, the old staircase will still remain as of yore. The ancient piscina, which was discovered in renovating the chancel in 1866, will be found projecting from the south wall of the chancel, where it has remained concealed since the days of the Reformation. The destruction of the vestry which stood north of the chancel and east of the Leventhorp Chapel brought to light an ancient "squinch."—*Bradford Observer.*

CHURCH, GYFEILLON, NEAR PONTYPRIDD.—St. David's Church, Gyfeillon, near Pontypridd, has just been enlarged at a cost of 2,700*l.* The part reopened consists of a nave, 84 ft. 6 in. long by 24 ft. wide; south aisle, 84 ft. long by 13 ft. wide, with narthex 22 ft. long by 8 ft. 6 in. wide, and will accommodate 500 adults. When the new chancel, organ chamber, and vestry are completed the church will afford accommodation for 550 people. The architect is Mr. Bruce Vaughan. The carving has been carried out by Mr. William Clarke, of Llandaff, and the church has been built by Messrs. A. J. Howell & Co., of Cardiff.

RESTORATION OF AUSTERFIELD CHURCH, YORKSHIRE.—The church at Austerfield, the home of the Pilgrim Fathers, has just been restored, under the direction of Mr. C. Hodgson Fowler, of Durham. The pillars and arches, which were found hidden in the north wall, have taken their original place in the interior of the church. Nothing has been done to these pillars and arches beyond cleaning them of plaster and colour-wash. The bulk of the exterior walls, which are about 4 ft. thick, have required little but clearing of plaster pointing. They are of about the same age as the pillars and arches referred to. The walls of the new aisle on the north side have been made as massive as the old work. The new work, like the old, is of Roche Abbey stone. Mr. J. H. Bowman, of the firm of Messrs. Bowman & Sons, Stamford, has acted as clerk of the works. —*Sheffield Telegraph.*

WESLEYAN CHURCH, LEEDS.—A new Wesleyan school-church has just been erected in Ladypit-lane, Beeston Hill, Leeds. Plans were prepared by Mr. G. F. Danby, architect, Leeds, and the building has been erected under his superintendence. It is built of brick, with stone dressings, and affords accommodation for 250 worshippers. There are three class-rooms, and by means of a patent folding partition one of these can, when occasion demands, supply fifty additional seats. The total cost will be about 1,400*l.* Mr. W. Schofield had the contract for the brick and stone work, and Messrs. J. Tomlinson & Son that for the woodwork, a large portion of which is of pitch pine.

PROPOSED BAPTIST CHURCH, STOCKTON.—Plans for the new church proposed to be erected by the members of the Northcote-street Baptist Church, Stockton, are now being prepared by Mr. Richardson, architect, Stockton. A site has been purchased in Lightfoot-grove, off Bowesfield-lane.

WESLEYAN CHURCH, ILKESTON.—On the 30th ult. a new Wesleyan church was opened in Bath-street, Ilkeston. The new church, which is of Gothic design, has four entrances. It is constructed of red bricks, with terra-cotta and stone dressings, and has a tower and spire rising to a height of 120 ft. above the street level. The edifice is 86 ft. long from east to west, 62 ft. wide across the transepts from north to south, 44 ft. in width across the main body of the orchestra, and 21 ft. 6 in. across the orchestra, and 21 ft. 6 in. across the large vestry. There are also two other vestries (one for the minister and one for the choir). In addition to the large east window, there are thirty-four side windows, and eight oriel windows. There is seating accommodation for 940 adults, or a mixed congregation of over 1,000. The fittings are of pitch pine, varnished, and the glazing is of half-tint cathedral glass. The church has been built by Messrs. J. H. Vickers & Son, Nottingham, at a cost of 5,500*l.*, the architect being Mr. George Haslam, of Ilkeston.

CONGREGATIONAL CHURCH, BARNSLEY.—A new Congregational church, erected at Farrar-street, Barnsley, from designs of Messrs. Hemshall & Paterson, Sheffield, was opened on the 31st ult. The church will seat about 450 worshippers, and will serve also for a Sunday-school. It has cost about 1,300*l.*

PRIMITIVE METHODIST CHURCH, &C., SPRINGTHORPE, NEAR GAINSBOROUGH.—Memorial-stones of a new Primitive Methodist church and Sunday-school room at Springthorpe, near Gainsborough, have just been laid. The estimated cost of the new building is 600*l.* Seats will be provided in the church for 120 worshippers, and the school-room will accommodate from fifty to sixty children. Mr. John Clark, of Sheffield, is the architect, and Mr. Cooper Snowden, of Grimsby, the contractor.

CONGREGATIONAL CHURCH, WESTBOURNE, BOURNEMOUTH.—This church was to have been opened on the 6th inst. The portion of the building which is now erected consists of a church with nave, and double transepts at the sides, the length of the nave being 70 ft., and the total width, including the transepts, 60 ft. There is also an organ loft and raised platform for the choir, situated behind the pulpit. The accommodation includes minister's and deacons' vestries, school-room, and an elementary class-room. There is, however, left for subsequent erection, galleries in the side transepts and at the end of the nave; a tower, which will be 80 ft. in height, and class-rooms, a church parlour, and a caretaker's room. Seating accommodation is now found for 440 people, but when the galleries are added the church will hold altogether 703. The building is faced on the outside with Purbeck rock-faced stone, with Bath stone dressings and traceried windows, filled in with cathedral tinted glass in lead lights. The roof is covered with tiles, and the interior paved throughout with wood block paving. The architect is Mr. T. Stevens, and the contractors Messrs. Jenkins & Sons. Messrs. Bacon & Curtis have executed the heating arrangements, and Messrs. Fippard & Cooper the electric lighting.

BOYS' SCHOOL, NEWENT, GLOUCESTERSHIRE.—At a meeting of the School Board, Newent, recently, the tender of Mr. J. Bidmead, Newent, for 995*l.* 16s. 3d. was accepted for building the new boys' school at Picklenash. The estimate of the architect (Mr. J. P. Moore) was 1,000*l.*

CATHOLIC SCHOOLS, LOUGHGIEL, BELFAST.—New Catholic schools have just been opened at Loughgiel. The schools have been built to accommodate 250 children, and were erected by Mr. Bernard Boyle, Ballycastle, under the direction of Mr. J. J. M'Donnell, architect, Belfast.

SCHOOL AND MISSION CHURCH, MIDDLETON, DURHAM.—A new school and mission church has just been opened at Middleton. Mr. J. J. Wilson was the architect.

BOARD SCHOOLS, BEESTON, NOTTINGHAMSHIRE.—On the 31st ult. the new schools, which have just been erected at Beeston by the School Board authorities, were formally opened. The buildings, which are divided into two separate blocks, and face Nether-street, occupy a ground space of some 1,469 square yards. The main block, which is of two stories, is equally divided for boys and girls, and contains on each floor four class-rooms, each 24 ft. 8 in. square, two of which may be opened out by sliding partitions into the large halls, measuring 50 ft. by 30 ft. The usual cloak-room and conveniences are provided, together with double width staircases communicating floor with floor. The infants' block is one story in height. A cookery class-room, 26 ft. by 23 ft., may also be used as a laundry, and, adjoining, a caretaker's house is added. The whole of the work is expected to cost between 14,000*l.* and 15,000*l.*, and the buildings are estimated to accommodate over 1,000 children, 300 boys, an equal number of girls, and 425 infants. The work has been carried out from the designs of Mr. A. N. Bromley, architect, of Nottingham, by Messrs. J. H. Williamson & Co., Nottingham. Mr. James Huckerby was the clerk of works.

WESLEYAN SUNDAY SCHOOLS, BOSTON.—The foundation stones of these buildings have just been laid. The new schools will be Gothic in style. The assembly-room, or hall, on the ground floor, is to be 59 ft. by 36 ft., and at the east end there will be a rostrum. There will be ten class-rooms on the ground floor, averaging from 11 ft. by 15 ft.; with two vestibules and two approaches or staircases to the chapel, and the necessary offices. The gallery round the main room is to be large enough to hold 300 children. The gallery will have six class rooms and a church parlour. Mr. W. Greenfield is the contractor for the new building, and Mr. W. Darby clerk of works. Messrs. Gelder & Kitchen, of Hull are the architects.

BUSINESS PREMISES, LONDON.—New premises have been built in Warwick-lane, City, for Mr. Charles Taylor. The new building, which has a total area of 3,000 square feet, has been erected from the designs of Mr. Walter Stair, and the contract, amounting to 6,000*l.*, has been carried out by Messrs. Chessum, of Haggerston.

EXTENSION, MANSFIELD HOSPITAL.—The opening of the new wing of the Mansfield Hospital—known as the Diamond Jubilee Ward—took place on the 25th ult. Mr. R. F. Vallance was hon. architect.

CATTLE MARKET, PONTYPOOL.—A new cattle market is about to be constructed at Pontypool. The architect is Mr. Lougher, Pontypool.

CATHOLIC CHURCH, BOCKING, ESSEX.—The foundation-stone of the new church and convent of the Immaculate Conception of St. Francis, at Bocking Bridge, was laid and blessed on the 26th ult. The architect is Mr. J. F. Bentley. Messrs. A. Brown & Son are the builders, and Mr. W. L. Tett is clerk of the works. The buildings comprise the church, with sanctuary chapel and transept, cells, corridors, refectory, kitchen, and all the domestic requirements of a religious house. The new convent is being built close up to the old residential house now occupied by the nuns. The church, which is to be of red brick with stone dressing, is in the Early Decorated style, and faces the road leading from Bocking to Halstead. A large wooden cross is erected on the site of the altar. The convent is expected to be finished by next October. The cost is to be about 7,000*l.*

NEW MUSEUM, WEST HAM.—At a meeting of the West Ham Town Council recently, the Public Libraries and Technical Instruction Committee reported that Messrs. Gibson & Russell had submitted the plans which they had prepared for the new museum to be erected on the site in Romford-road adjoining the Institute, agreed to be purchased by the Council for 1,200*l.* The report was adopted.

THE STAFFORDSHIRE BUILDING TRADE.—The building trade throughout North Staffordshire is in a most healthy condition, and there is a general consensus of opinion among master builders and operatives alike that the coming spring will be one of the busiest that has been experienced for years. Unfortnnately there are breakers ahead in the shape of labour troubles, but it is to be hoped that the course that has been pursued for several years past will again be adopted, viz., arbitration on the points of disagreement. Bricklayers report employment as good, with practically none out of work. Joiners are busy, with a small percentage unemployed. Plasterers are very busy. Stonemasons report trade as exceptionally brisk. Painters and plumbers report a decided improvement in the condition of employment. At Leek business in all branches of the trade is good, and all classes of operatives are well employed. At Crewe there are no operatives in the building trade out of work, and full time is general. At Stafford all branches report a decided improvement in the state of employment, and full time is now general in all departments, with none out of work.—*Staffordshire Sentinel.*

MASONIC TEMPLE, STEVENSTON, NEAR GLASGOW.—On the 26th ult. the memorial stone of a new Masonic Temple in connexion with Stevenston Thistle and Rose Lodge, No. 169, was laid. The new Masonic Temple is situated in New-street, adjoining the present lodge premises. It is being erected from plans prepared by Mr. John Armour, architect, Irvine.

HIPPODROME, CRANBOURNE-STREET. — A large site has been cleared, between Ryder's-court and Earl's-court, on the north side of the street, for the erection by a company of the New Hippodrome, together with shops and residential chambers, from the designs of Mr. Frank Matcham. The street is named after the Cecils, Marquises of Salisbury, and Viscounts Cranbourne.

NEW BATHS, KENSAL TOWN.—The new baths at Wedlake-street, Kensal Town, have just been opened. The architects of the baths were Messrs. Harner & Pinches, and their designs have been carried out by Mr. C. Wall, builder, of Chelsea. There are fifty-one private baths, namely, twenty-five for men and sixteen for women. The large swimming-bath for gentlemen is 83 ft. long and 30 ft. broad. A gallery runs round the sides, and there are fifty-seven dressing-boxes for the accommodation of swimmers. In the smaller bath, 60 ft. long and 25 ft. broad, for ladies, there are thirty-five dressing-boxes. The laundry contains a high-pressure washing machine, one hydro, an ironing machine, and four steam tubs with the usual fittings. In the basement is a blacksmith's and fitter's workshop, and near to it is the officers' mess-room and the store-room.

BUILDING IN LEEDS.—At the ordinary fortnightly meeting of the Leeds Corporation Building Clauses Committee on the 1st inst, the number of plans submitted for new houses and business premises, and for alterations to existing structuree, was 126.

PROPOSED COTTAGE HOSPITAL, MORECAMBE.—Plans for a cottage hospital at Morecambe have been approved. Mr. Wright is the architect. The esiimated cost of the building is 2,500*l.*

COTTAGE HOMES, CROYDON.—A block of cottage homes for the accommodation of poor children under the charge of the Board of Guardians, which for some time past has been in course of erection in the Mayday-road, Croydon, was opened recently. The homes—six in number—stand on rather more than an acre and a half of ground, and are built in semi-detached pairs, two stories in height. Each home is planned to accommodate a foster mother and twelve children. The front entrance door opens into a hall. The living room, measuring 21 ft. by 15 ft., is placed at the back of the building for the especial purpose of obtaining a southern aspect, and with windows overlooking the grounds. The scullery, which is also at the back, measures 15 ft. by 13 ft. 6 in. The larder and store room, with the bath room, are located in the front of the building. The upper floor is taken up with the bedrooms, &c. Each home contains a separate bedroom for the foster mother, and three bedrooms of varied sizes for the children, to accommodate respectively five, four, and three beds, with an average floor space of 42 superficial feet to each bed, and the windows are arranged to provide for cross ventilation. The cost has been as follows:—The buildings, 4,450*l.*; the boundary walls, fences, playgrounds, laying out gardens, &c., 450*l.*; total, 4,900*l.* Mr. West was the architect.

SANITARY AND ENGINEERING NEWS.

WATER SUPPLY, FULWOOD, LANCASHIRE.—Mr. E. A. Sandford Fawcett, Inspector appointed by the Local Government Board, held an inquiry recently at the offices of the Fulwood Urban District Council into the application of the Council for sanction to the borrowing of 7,000*l.* for purposes of water supply. The Engineer (Mr. Myres) gave evidence as to the details of the proposed extension, and the Inspector afterwards drove over to the works at Grimsargh.

NEW SEWERAGE SCHEME, ABERDEEN.—In order to meet objections by the Dee Fishery Board as to the discharge of sewage into the River Dee by the suggested low level sewer or by storm water culverts, Mr. W. Dyack, C.E., Borough Surveyor, Aberdeen, has revised his scheme of main drainage works. *Inter alia*, Mr. Dyack proposes to reconstruct the present main outfall sewer from South Esplanade along Sinclair-road as far as Torry Harbour. The estimated cost of the modified scheme is 67,670*l.*, as against 72,565*l.* for the original scheme. The cost of surface water sewers, which might be constructed in future, is estimated at 9,820*l.*, and that of diverting the Denburn from the Upper Dock along Market-street at 9,290*l.*

SEWAGE WORKS, ABERFELDY, PERTHSHIRE.—On the 30th ult. the new sewage disposal works at Aberfeldy were formally opened. Mr. W. R. Copland, Glasgow, was the engineer, and the contractors were Messrs. Nimmo & Coupar.

LANCASHIRE AND YORKSHIRE RAILWAY AND THE SHIP CANAL.—The branch line of the Lancashire and Yorkshire Railway connecting the system of the Company with the Ship Canal docks at Salford was opened for merchandise traffic on the 28th ult. It is a line nearly a mile and a quarter in length, and has its beginning at Windsor Bridge, in Salford. For the most part it is carried underground through a series of tunnels. In its beginning it runs from Windsor Bridge between retaining walls as far as Liverpool-street. Then under that street there is a tunnel 473 yards long, passing under the main line of the London and North-Western Railway Company and Regent-road, and ending at a point near Dorrington-street. A short open length between retaining walls is next constructed, and then there is another tunnel from Martha-street to Robert Hall-street, 291 yards long. Continuing, there is an arching of the streets between Robert Hall-street and West Park-street, with retaining walls between. A third tunnel of 172 yards carries the line to Hulton-street. From that point the line ascends, and reaches a level at the rear of the large seven-story warehouse on the north side of No. 8 Dock. The height of the tunnels is from 17 ft. to 23 ft., and the depth of the line below the surface varies from 35 ft. to 45 ft. Mr. W. B. Worthington, the chief engineer of the Company, was the engineer, and Mr. L. Franklin has acted as resident engineer. Mr. Thomas Wrigley, of Middleton Junction, was the contractor.

METROPOLITAN SEWERAGE WORKS, CHELSEA.—The London County Council notify their intention to apply to the Home Secretary for his consent to their taking, by compulsion, certains lands and buildings in St. Luke's parish, being part of Cremorne Wharf, in Lot's-road, and Nos. 17-37 (odd), Lot's-road, about 1,812 square yards in area. They want the land for an engine-house, and for other works, in order to relieve the low-level sewer at times of heavy rainfall by pumping water therefrom, and, similarly, to relieve the Counter's Creek sewer when heavy rainfall occurs during high tide in the Thames.

STAINED GLASS AND DECORATION.

MEMORIAL WINDOW, TOTNES.—A memorial window has just been unveiled in Totnes Parish Church. The window, which is of four lights with tracery, is placed in the south aisle. The work was carried out by Messrs. Fouracre & Son, Plymouth.

MEMORIAL BRASS, LALEHAM CHURCH, MIDDLESEX.—A memorial brass to Thomas Arnold, D.D., was placed on the north wall of Laleham Church on the 31st ult. It is carved in brass, with letters in relief, the work being executed by Messrs. Benham & Froud, Limited, London.

FOREIGN.

FRANCE.—The *Journal Officiel* has published the decree classing the new metropolitan railway as "d'utilité publique," and the works will therefore be immediately commenced.——M. Henri Bouchot has been appointed Curator of the engravings department of the Bibliothéque Nationale, in place of M. Duplessis, resigned.——The Japanese collection at the Louvre is in process of reorganisation in the ground-floor galleries towards the quay.——The Luxembourg Museum has been reopened to the public, after having been closed for a long time for important alterations.——M. J. Paul Laurens has completed a new picture intended for the Hôtel de Ville of Paris, and which represents an episode of the Fronde—the arrest of Councillor Brousse.——The "Société Nationale des Architectes de France" has opened its seventh competition, the programme being "Un pavillon de repos dans une Exposition Universelle."——On April 17, at St. Maurice, will be inaugurated the monument erected by the Department of the Seine to the memory of Delacroix.——Last Sunday a new bridge across the Seine was opened at Charenton, not far from the Pont du Conflans.——The Chapelle Sainte Eugénie, at Biarritz, built in 1855, under the order of Napoléon III., is in course of demolition.——A monument is to be erected at Agen in honour of the poet Jasmin; M. Denys Puech is the sculptor who has it in hand.——The Congress of French Architects will be held this year at Paris, from Monday June 20 to Saturday June 25.——There is talk of bringing the waters of the Lake of Annecy to Lyons by a canal of 142 kilometres long. It is estimated that this would give Lyons a water-supply of 652·000 cube metres per day.—— The municipality of Toulouse have commissioned M. Jean Paul Laurens to paint a large subject for the ceiling of the "Salle des Illustres," in the Capitole, representing in allegorical form the deliverance of the inhabitants after the death of Simon de Montfort.——We hear of the death of M. Ernest Henri Lagrave, architect, who has died at Paris at the age of 69. He was a pupil of Garnot and of the Ecole des Beaux-Arts. Being appointed an Inspecteur des Travaux to the City of Paris, he collaborated, in that capacity, in the construction of the churches of St. Joseph and La Trinité. He built the large hôtel of Comte Pillet Will, in the gardens of the Rue Moncey. To him also we owe the châteaux of Lamotte Chaudemier and of Triebardon. He was an able artist. His son, M. Paul Lagrave, is a "diplomé" architect and also an Inspecteur des Travaux under the Paris Municipality.

AUSTRIA.—The town council of Korneuburg have communicated with the Imperial Commissioners of Art and Historical Monuments with regard to the proposed restoration of the façade of the Augustinian Church. It is to be restored to its original form, and a copper cupola is to replace the temporary roof at present on the tower. The Commissioners have agreed to support the claim for a grant from the Fund of Public Religion for this purpose. The restoration of the parish church of the town is also to be taken in hand.——In 1896 a committee was constituted in Prague, on the invitation of the Municipal Council, to consider the best methods of preserving and enhancing the artistic and historic interest of the town. The committee has now handed in its resignation on the ground that insufficient attention has been paid to their recommendation by the Municipal Council, preferring, as they express it, to lay down their office rather than to deceive the public into imagining that the antiquities of the town are properly looked after.——At a meeting of the Chamber of Commerce of Reichenberg, held on the 18th ult., it was unanimously decided to build new offices for the Chamber. A committee of thirteen has been nominated to superintend the matter. A preliminary estimate of cost (130,000 florins) has been agreed upon.

JOHANNESBURG.—A meeting of architects was held in the Palace Buildings, Johannesburg, recently, for the purpose of considering the advisability of forming a society to promote friendly intercourse amongst the members of the profession, and to afford facilities for the furtherance of the study of architecture. Mr. G. W. Nicolay was voted to the chair. It was resolved to form an association under the title of the Johannesburg Architects' Society, and to invite co-operation of all members of the profession.

SYDNEY.—The annual meeting of the Institute of Architects of New South Wales was held on February 16, at 82, Pitt-street, Sydney. The President of the Institute (Mr. J. B. Barlow) read an address, wherein he said that they seemed in New South Wales to have entered upon a new architectural era—the era of the red-tiled roof, and a feverish strain after the picturesque. The pity of it was that the strain was so often too painfully palpable. There was really no reason why their houses should be so aggressively red. However, that was a matter of taste. What was far worse was the innate vulgarity which impelled people to spend the greater part of their available cash in making the front of their houses ornate, while the remainder was carried out in the shoddiest possible manner. Some time ago, when it was decided that new Houses of Parliament were required, a deputation of architects under the auspices of that Institute waited upon the Minister for Works to ask that designs for those buildings might be obtained by means of a public competition. They had a strong case. The Minister listened to what they had to say, and promised to lay the matter before his colleagues; but nothing came of it—not even the customary reply. Their attitude seemed to have been misunderstood, for a statement had since appeared to the effect that the Minister considered the Government Architect perfectly competent to carry out any work which might be entrusted to him, and that his staff included some of the most able men in Australia. None were more ready to acknowledge the truth of that than they were, but they would not admit that for reasons such as those the Government Architect's department should be employed to design all their public buildings. There was one thing which they were determined to do their utmost to suppress. He referred to the large amount of private architectural work done by the servants of the Public Service Board. If they were not allowed to compete for Government work, he thought that they were at least entitled to demand that Government officials should not be allowed to compete against them.

MISCELLANEOUS.

PROFESSIONAL AND BUSINESS ANNOUNCEMENTS.—Mr. W. Henman, architect, Birmingham, has taken into partnership Mr. Thomas Cooper, and they will carry on practice together at 31, Cannon-street, Birmingham. Mr. Cooper was formerly pupil of, and then assistant to, Mr. Alfred Waterhouse.

PROPOSED STRAND IMPROVEMENT.—The Strand Board of Works, at their meeting on the 31st ult., resolved to adopt the report of their Improvements

and Parliamentary Committee, recommending that White Hart-street be widened so as to give a straight line for the present congested traffic of the Strand, 40 ft. wide from Catherine-street to Clare Market. As the result of negotiations with the representatives of the ground landlord, the Duke of Bedford, the Committee were able to arrange that the Strand Board's contribution towards the 32,000*l.*, the estimated cost of the improvement, should not exceed 3,000*l.*, the St. Martin-in-the-Fields' Vestry having agreed to contribute 5,000*l.*, and the London County Council contributing the remaining three-fourths of the net cost. It was decided that the work be carried out in co-operation with the County Council and St. Martin's Vestry, subject to an agreement with the Duke of Bedford, and providing that the new frontages on White Hart-street, between Drury-lane and Catherine-street, when widened, shall be utilised as building frontages, in contradistinction to back entrances, and to the reasonable satisfaction of the Surveyor of the Strand District Board of Works.

BIRMINGHAM CITY SURVEYOR'S SALARY.—A recent report of the Public Works Committee to the Birmingham City Council deals with the question of the remuneration of the City Surveyor. In May, 1896, an arrangement was approved by which Mr. Till relinquished the office of City Surveyor, retaining the office of City Engineer, in a consulting capacity only, at a salary of 500*l.* per annum, and that of consulting Engineer to the Birmingham Tame and Rea District Drainage Board, at a salary of 100*l.* per annum. The committee were authorised to advertise for a new City Surveyor at a salary of 500*l.* per annum, stating that the person selected would also be appointed Deputy Engineer to the Drainage Board at a salary of 300*l.* per annum. Under this arrangement Mr. John Price was appointed, on July 28, 1896, City Surveyor and Deputy Engineer to the Drainage Board. Mr. Knight, the superintendent of the Sewers and Rivers Department, paid by the Corporation a salary of 500*l.* per annum, was also employed by the Drainage Board, who have recently been paying one-half of his salary. In consequence of the extension of the sewage farm, the whole of Mr. Till's services and the greater part of Mr. Knight's were required by the Drainage Board. The reorganisation of the City Surveyor's department, the arrears of work, the proposed conversion of tramways, the inquiry into the condition of the sewers of the city, and other matters, have practically absorbed the whole of Mr. Price's time since his appointment. Mr. Knight having applied for the office of Borough Surveyor of Derby, and the Drainage Board being anxious to retain his services, they approached the Public Works Committee with the view of relieving him of his duties to the Corporation, and of obtaining his whole services for the Board. While this was before them, the lamented death of Mr. Till caused both bodies to take the whole question into consideration. Ultimately the following arrangement was arrived at:—(1) That Mr. Price should devote the whole of his time to the duties of City Engineer and Surveyor; (2) that Mr. Knight should be relieved from his duties to the Corporation, and should be appointed Engineer to the Drainage Board; (3) that the Drainage Board should employ a separate engineering staff, with offices away from the Council House, and that the Board's contribution to the Corporation should cease. In pursuance of this arrangement, Mr. Price has given notice to resign his office of Deputy Engineer to the Board. As this arrangement had the effect of reducing Mr. Price's salary by 300*l.* per annum, it became necessary for the Public Works Committee to consider what recommendation they should make to the Council in the matter. The salary of Mr. Till prior to 1896 was 1,400*l.* per annum (including 400*l.* from the Drainage Board. Having regard to the further work which will devolve upon Mr. Price in the near future, the Committee unanimously recommend that his salary be increased to 1,000*l.* per annum from the 1st inst. The Committee have appointed Mr. E. B. Savage, Deputy City Engineer at Norwich, to succeed Mr. Knight as Superintendent of the Sewers and Rivers Department, at a salary of 300*l.*

EDINBURGH PUBLIC IMPROVEMENTS.—In connexion with the city improvement made by the Corporation of Edinburgh in the rebuilding of the North Bridge and the widening of North Bridge-street, a sale took place recently of the areas of each side of North Bridge-street recently acquired by the city. The whole of the west side of North Bridge-street, from the bridge to High-street, with a frontage of 350 ft., and a depth of about 130 ft. was exposed for sale in one lot at 120,000*l.*, and was purchased at that figure by the proprietors of the *Scotsman* newspaper. It is the intention of the purchasers to erect on the principal portion of the site which faces Princes-street, new offices for the accommodation of all departments of the *Scotsman*. A block on the east side of the street was sold to the Commercial Bank for 35,000*l.*

FEDERATION OF MASTER BUILDERS' ASSOCIATIONS, LANCASHIRE AND CHESHIRE.—A Federation of Master Builders' Associations in Lancashire and Cheshire has just been concluded, and the rules will shortly be issued to the members of the trade in the two counties. The new organisation is formed on the lines of the Engineering Employers' Federation, and its affairs will be controlled by an Executive Council, the first President being Mr. R. Neill, of Manchester. In Manchester, Liverpool, Bolton, and several other towns the workmen have given notice for an advance in wages, and the object, it is stated, of the Employers' Federation is to give a united resistance to their demands.

BRISTOL ELECTRICITY DEPARTMENT.—The working of the Electricity Department of the Corporation of Bristol for the year ending March 25 shows considerable advance upon the working of former years. At the date of the last return—*i.e.*, March, 1897, the Department had connected to their mains 614 customers, with 38,302 lamps. At the present date there are connected 814 customers, with 49,917 lamps, showing an increase of 200 customers and over 10,000 lamps. The extension of the public lighting has not yet been carried out, but it is in progress, and before the summer is over it is expected that the public arc lamps will be increased threefold. Extensions of the mains for private lighting have been or will be made within the next two months in the following places:—Stapleton-road, Cheltenham-road, Gloucester-road, Elgin Park, Durdham Park, Redland-gardens, Clifton Hill, The Promenade, Mortimer-road, Kensington-place, &c. The number of sub-stations has been increased from thirty-one to thirty-nine.

ASSOCIATION OF MUNICIPAL AND COUNTY ENGINEERS.—The twenty-fifth Voluntary Pass Examination of candidates for the offices of Municipal Engineers and Surveyors to District Councils, carried out by this Association, was held at the Institution of Civil Engineers, on Friday and Saturday, April 1 and 2. There were forty-nine entries for the examination, the written portion of which was taken on the first day. The whole of the second day was occupied with the *viva-voce* portion of the examination. The examiners were:—For Engineering as applied to Municipal work, Mr. A. M. Fowler; for Building Construction, Mr. James Lemon and Mr. Joseph Lobley; for Sanitary Science, Mr. Francis J. C. May; for Municipal and Local Government Law, Mr. Charles Jones. Mr. A. M. Fowler was Superintending Examiner. The Examiners are all Past Presidents of the Association.

THE BIRMINGHAM MUNICIPAL TECHNICAL SCHOOL ENGINEERING SOCIETY.—The members of this Society held their annual dinner at the "Metropole," Birmingham, on Saturday last, under the Presidency of Mr. E. Fuhrmann Clarke. In his Presidential address on "Beauty in Engineering Design," Mr. Fuhrmann Clarke strongly advised engineers to cut themselves free from all preconceived notions of architectural effect, and pointed out that engineering designs, and most engineering materials, were not to be improved by the addition of architectural adornment. He further controverted the recent assertion of an eminent architect, that the practical training through which engineers passed in foundries and workshops, alongside men having no artistic training, was such as to completely destroy any perception of the beautiful which they might possess. The President further alluded to three of our most beautiful engineering works, viz.:—The Menai Suspension Bridge, London Bridge, and Waterloo Bridge, the designers of which were men who rose from the ranks and passed through that very course of training which had been deprecated—the one as a working stonemason, and the other as a millwright. In alluding to the Forth Bridge, which he considered to be the finest example of modern bridge design, Mr. Clarke pointed out that this result was largely due to its entire freedom from architectural embellishment, and that the assertion of faults in the æsthetic treatment of the design by the architect before mentioned, showed that want of perception in the possession of which, it was alleged, engineers so lamentably failed.—In the course of the evening the retiring President of the Society (Mr. Edward C. R. Marks) was presented with a silver rose bowl as a token of the esteem in which he is held by the members, and as recognition of the services rendered during the three years of his presidency.

ROMAN MANCHESTER.—On the 1st inst. a meeting of the Lancashire and Cheshire Antiquarian Society was held in the schoolroom of Chetham's College, when Mr. Charles Roeder, who has been making observations on the site of the new goods station of the Great Northern Railway being built in Deansgate, read a paper on "Recent Investigations on Roman Manchester." He mentioned that besides the discoveries on the station site there had been a few of the usual Roman relics found in the digging for the foundations of works in Quay-street, on the site of Dr. Byrom's old house. He thought Quay-street might be taken as the northern limit of the Roman town. There were now scarcely any visible relics left in Deansgate of the Roman period. The only record now above ground consisted in a piece of Roman masonry inside the former *castrum* and now occupied by a timber yard. Its position seemed to establish it as the prætorium. Mr. Roeder, dealing with the negative results of the investigations, observed that he could not record the discovery of any altars, inscriptions, or sculpture. He had found evidence that Mancunium had its local potters and iron smelters. The recent excavations, he considered, had added not a little to their knowledge, but what he had obtained were mere scrapings in comparison with what might have resulted from a careful watching of former excavations such as those involved in connexion with the Cheshire Lines extension. He had been surprised how many objects he had met with in the little area he had traversed. They would now know how much better where to look for such objects in any further demolition of property in the city. Mr. Roeder exhibited the objects discovered, consisting chiefly of pottery, and including specimens of mosses and other plant remains.—*Manchester Guardian.*

REGISTRATION OF PLUMBERS.—At a public meeting, held at the Town Hall, Durham, the following resolution was carried unanimously: "That this annual general meeting of the North of England District Council for the National Registration of Plumbers is of opinion that an organised and efficient system of registration of qualified plumbers is essential to the protection and preservation of the health of the community, and records its approval of legislative sanction being given to the registration movement, and its desire that the Members of Parliament in the district will support the Bill now before the House of Commons."

CAPITAL AND LABOUR.

STRIKE OF BRICKLAYERS AT DRIFFIELD, YORKSHIRE.—The society bricklayers at Driffield gave in notices which expired on the 31st ult., for a rise of a penny per hour in their wages, which stand at sixpence. The masters offered an advance of a halfpenny, which was refused; and the men ceased work, the masters, who held a meeting previously, being unable to agree to any united course of action.

ABERDEEN JOINERS.—The Aberdeen Conciliation Board have rejected the operatives' demand for an eight-hours' day and also for an increase of the standard rate of wages from 8d. to 9d. per hour, it being resolved not to give any intermediate rise, and the wages remain as at present. It was agreed that overtime be paid at the rate of time and a half up to nine o'clock on ordinary days, and double time on Sundays and after five o'clock on Saturdays; that for old work or the demolition of old buildings, the extra allowance be 6d. a day; that the rate of extra allowance for country work be 5s. per week; and that the period for giving notice of alterations in by-laws or wages should remain as at present, viz., from November 1 to February 1. Both parties have agreed to abide by the finding, the men's union, however, resolving to insist that in no case shall less than the standard rate of wages be paid.

BUILDING TRADE DISPUTE, SOUTH SHIELDS.—The men engaged in the building trade at South Shields struck work on the 1st inst. The bricklayers, stonemasons, and plasterers demand a penny an hour increase, from 9d. to 10d., and the labourers an increase of from 6½d. to 7d. The masters offered a uniform increase of one half-penny, but this offer the men refused.

THE BIRMINGHAM BUILDING TRADE DISPUTE.—On the 30th ult. a meeting of the employers, representing all branches of the building trade, was held in the Grand Hotel, Birmingham. Mr. John Bowen presided. The Chairman explained the result of the conciliation proceedings, and after a discussion a resolution in the following terms was passed:—"That this meeting, having heard the report of the conciliation meetings since the last general meeting of the trade, confirm the action of the several conciliation committees, and leave the matters in dispute in their hands for settlement or otherwise." With the object of preventing the serious disturbance to work which was threatened, the Masters' Conciliation Committees have been actively engaged, and as an outcome an offer to all sections of a half-penny per hour, to come into operation on October 1, was put forward. This proposal to meet the men half-way was discussed at two meetings in the Bristol-street Board Schools on the 30th ult.—the builders' labourers' section of the Birmingham and District Gas Workers' Union assembling to the number of fully 1,500 in one department, and the members of the Federated Society of Builders' Labourers of Great Britain and Ireland meeting in another room. It is estimated that about 3,000 labourers of one class or another were interested in the dispute. The builders' labourers' section of the Gas Workers' Union, after discussion, passed a resolution in favour of accepting the masters' terms. There was, however, a very strong feeling current against the idea that this should indicate a falling away from the position originally taken up. The men were confronted with the fact that employers had large contracts running, and that a stoppage would entail serious consequences, and with this in view, the more reasonably-disposed were favourable to the halfpenny concession in October. The Gas Workers' Union, being the more representative organisation in point of numbers, the Federated Labourers' meeting was largely influenced by the decision arrived at. After a protracted discussion, this meeting also accepted the terms of the masters, it being, however, distinctly stated that their decision was principally influenced by the feeling of the larger organisation. In view of that decision it was held that any other course would be suicidal. While these meetings were in progress the members of a kindred organisation—the Amalgamated Society of Gas Workers, Bricklayers, and General Labourers

—met under the presidency of Mr. H. Simpson at the Adderley-street Club House, and the feeling was unanimously against the acceptance of the masters' proposal. The society was represented by about 300 members, but their action was entirely subject to the meetings of the larger organisations. The plumbers, who were also affected, met in the Trades Hall, and resolved in favour of the masters' terms. —*Birmingham Gazette.*

CARPENTERS' DISPUTE, NEWPORT, MONMOUTHSHIRE.—A dispute has arisen between the Newport Master Builders' Association and the local branch of the Amalgamated Society of Carpenters and Joiners. It appears that some twelve months ago the men's Union amended their rules in order to prevent the working of overtime unless the masters agreed to pay an increased rate of wages per hour for such overtime. The Masters' Association declined to grant the rate asked for. Recently the Union called its members out of one of the shops at Newport, and have declared the shop a "black" one, because the master had insisted upon the men working overtime. The Masters' Association has called upon the Union to withdraw the boycott, and it is feared that unless the demand is acceded to the masters will retaliate by locking out all the Union men in the town.

THE DISPUTE IN THE CARPENTRY TRADE, COALVILLE, LEICESTERSHIRE.—In accordance with notices handed in, the carpenters in this district came out on strike on the 1st inst., the masters having refused to grant the 1d. per hour advance asked for. With the exception of two firms, however, they are willing to concede an advance of ½d. per hour.

FIFE PAINTERS.—The operative painters, who threatened to come out on strike on the 1st. inst. if certain demands which they had made were not conceded, met with the employers on the 31st ult., and as the result of a conference the standard wage has been raised from 7d. to 8d. per hour.

THE BUILDING TRADE, KING'S LYNN.—During the past few days meetings of employers and men interested in the building trade have been held in Lynn to consider the grounds of an increase of wages. It is stated that the carpenters and joiners have intimated that they will be content with 6½d. per hour, an advance of ½d.; but the bricklayers demand 7d. per hour, which the employers decline to give, though they have offered tc pay 6½d.

DISPUTE IN THE LEICESTER BUILDING TRADE.—As the result of further consultations between Mr. Thos. Smith, the local representative of the Board of Trade, and the Carpenters' Society, he invited representatives of the Master Builders' Association and the Carpenters' and Joiners' Union, to another conference, with a view to arriving at a settlement of the differences existing between the respective bodies. The conference was held under the chairmanship of Mr. Smith at the Town Hall on March 29. After a considerable discussion, the employers proposed that the workmen continue working at the present rate of wages, namely, 8½d. per hour, with the reduction of two hours per week —56½ hours to 54½ hours in the summer months, the time being altered so as to commence work at 8.30 on Monday morning, instead of 6 o'clock; all other proposals and counter proposals to be withdrawn. The men proposed that the employers give ½d. advance, making 9d. per hour, their proposals as to reduction of hours to be withdrawn for the present. Neither of these proposals being acceptable, the chairman, as a compromise, suggested that the employers give ¼d. per hour advance, viz., 8½d. to 8¾d., and that the working hours be reduced from 56½ to 54½ hours in the summer months, the reduction of hours to take place on Monday morning. As a result of the conference, it was agreed that the suggestions should be submitted for the consideration of the respective associations, the decisions to be reported at an adjourned conference. The conference was resumed on the 1st inst., when it was reported that the Employers' Association had agreed to accept Mr. Smith's suggested basis of settlement, adding a rider to the effect that there should also be a satisfactory settlement of the ready-made joinery question. The result of the men's meeting was to maintain their original proposal, to have 9d. per hour, but to withdraw the demand for the reduction of hours, and in the event of the employers not agreeing to this at the conference, they should offer to submit the whole of the proposals and counter-proposals, of which original notice was given by each side, to an independent arbitrator, appointed by the Board of Trade. After repeated conferences between the chairman and the representatives of the two associations, it was found impossible to arrive at a settlement, and the employers subsequently passed the following resolution:—"The Master Builders' Association, having given Mr. T. Smith's proposal of March 29 *re* wages and hours their serious consideration, decide to accept the same if agreed to by the men's society by or before eleven o'clock on Saturday, April 2. If the men's society continues to reject Mr. Smith's proposals, the employers have no further offer to make for an amicable settlement of the dispute." This the men's representatives, acting on the instructions received from their meeting, could not accept, stating that as no settlement had been arrived at, circulars would have to be sent to each of their members instructing them to give the two hours' notice to cease work, in accordance with the existing working rules.—On September 30 last the operative plasterers gave six months' notice for alteration of working rules. Their requirements embraced an extra 1d. per hour, making 10d. per hour, twelve o'clock on Saturdays, preference to be shown to their own sons, with a limit of two apprentices in each shop, and some alterations under the heading of classification of work. Counter proposals were framed by the employers, and as a result of repeated meetings of the disputing parties, an amicable settlement has at last been arrived at. The new rules came into operation on the 1st inst. The operatives' gains are 1d. per hour, and twelve o'clock on Saturday, a mess-room to be provided. The employers expect to get a better supply of men by paying the higher rate of wages. A full number of working hours are to be made each day before coming on extra pay for overtime—(a provision for cases of emergency)—a book for signatures of men wanting employment or masters wanting men is to be kept, masters of the Association to have the first call, and, lastly, a standing Conciliation Board for the settlement of all disputes with a view to avoiding petty strikes or lock-outs has been established.—*Leicester Post.*

LEGAL.

ALLEGED FICTITIOUS BUILDING LEASES.

IN the Chancery Division of the High Court of Justice, on the 1st inst., Mr. Justice Romer heard an *ex parte* motion on behalf of the plaintiff in the case of Marnham *v.* Weaver for an injunction and a receiver of certain premises in Lower Sydenham. Mr. Latham, Q.C., who appeared in support of the motion, said the plaintiff had lent 1,000*l.* to the defendant Weaver, who was a builder, and had taken mortgages upon the property in question; but it had since been discovered that the leases were fictitious, and therefore the mortgages were useless, and the whole thing was invalid. There were two defendants to the record—Weaver and Walters—but, so far as the plaintiff had been able to ascertain, they were one and the same person. Plaintiff put pressure upon the defendants to give him his money back, but he could get nothing from them, and he had now discovered that, although Weaver had no lease at the date of the transaction with the plaintiff, the defendant had got a lease since.

His Lordship: Of the same premises?

Mr. Latham: Yes, my Lord, and he has mortgaged the premises to another man, and we cannot touch the mortgagee. The reason I move *ex parte* is that we have reason to believe, and do believe, that if we had served the defendants with notice they would defeat our object. [Mr. Latham asked for Mr. Gardner, surveyor and auctioneer, to be appointed as receiver.]

His Lordship granted the application asked for, appointing Mr. Gardner receiver of the premises over the first motion day next sittings, subject to the rights of the first mortgagee, and ordering an injunction restraining the defendants from assigning or otherwise dealing with the properties in the meantime, the receiver to act at once, plaintiff undertaking in security, and to accept short notice of motion to absolve from the Vacation Judge. Leave was also given to serve upon defendants the notice of motion with the writ.

THE *CHRISTIAN HERALD* LIGHT AND AIR CASE.

In the Chancery Division of the High Court of Justice, on the 1st inst., before Mr. Justice Romer, the case of the *Christian Herald* Company *v.* Knight again came on for hearing.

Mr. Neville, Q.C. (with whom was Mr. Sergeant), for the plaintiffs, said he had to move his lordship for an order for the continuation of an injunction granted a few weeks ago in this light and air case, restraining the defendants to a certain extent from proceeding with the erection of their building so as to darken and obstruct the plaintiffs' ancient lights at their newspaper offices in Tudor-street, E.C. The defendants were constructing a building on the opposite side of the street. Negotiations had taken place between the parties for the purpose of arriving at some kind of arrangement, but they had been unsuccessful, and he must now ask his lordship to put the defendants on some terms in order that the plaintiffs might be safe until the trial of the action. The interim injunction was granted in respect of six windows on the ground floor on that part of plaintiffs' building which was immediately opposite the defendants' building. For upwards of twenty years the plaintiffs had had absolutely an unobscured light until the defendants put up their building, and it could not seriously be contested by the other side that their building did not take away a very substantial part of the light. The plaintiffs did not wish to be unreasonable, and although if they insisted upon their strict legal rights, they might be able to get the defendants' building down to a very low level, they were willing for the present to let the matter rest if the defendants would not take their building higher than the line of the other buildings on the same side in the same street—namely, 44 ft.

Mr. Farwell, Q.C. (with whom was Mr. Rowden), for the defendants, said his clients had put in a modified plan.

Mr. Justice Romer: How high will the building be then?

Mr. Neville: We say 51 ft.

Mr. Farwell: We say 49 ft.

Mr. Neville: Call it 50 ft., and that does not make any allowance for chimney stacks at all. By going up 50 ft., that will give them 6 ft. higher than the other buildings in the same line, and we say that is not a reasonable proposal, having regard to the fact that our light was absolutely unobstructed before they came. If the defendants would limit their building to a height of 44 ft. I will say no more on the interlocutory application.

Mr. Farwell said there was more in the case than his friend had stated. His clients had been allowed to go on and the plaintiffs' surveyor had said there was practically no obstruction to the light. The surveyor denied now that he had any authority to act for the plaintiffs, but he did not suggest now that there would be any interference with the light. This was not a case for an injunction at all. If there was anything to be compensated for at all, 50*l.* or 60*l.* damages would be sufficient. He did not think the Court, when it had heard the matter, would be satisfied that there was any substantial interference with the light.

Mr. Neville: I am satisfied with the injunction as it stands.

Mr. Justice Romer: Put it down for trial forthwith.

Mr. Farwell: I want to raise the issue that their surveyor said there was no obstruction of light.

Mr. Justice Romer: Very well; but I suppose the plaintiffs will say he had no authority from them.

It was arranged that the trial of the case should be taken on the first day when his lordship takes witness actions next sittings, the interim injunction being continued, only two experts to be called on either side.

THE CONSTRUCTION OF DRAINS.

AT the Lambeth Police-court recently, Mr. J. O. Richardson, a builder, carrying on business at Albert Works, Peckham, was summoned, before Mr. Hopkins, at the instance of Inspector Stevenson, on behalf of the Camberwell Vestry, for unlawfully constructing a drain at the premises known as the South London Art Gallery and Technical Institute, Peckham-road, so as to be a nuisance. The proceedings were taken under the 42nd section of the Public Health (London) Act, and the case came before the court under somewhat peculiar circumstances, the Vestry appearing in a twofold capacity, they being, as the sanitary authority, the prosecutors in the case, and as a corporate body the owners of the premises, in respect of which the proceedings were taken. The Technical Institute was only recently erected, and the contract for the work was secured by the defendant. The case for the Vestry was that at the beginning of the year the caretaker of the building complained of a smell in his apartments, and that upon an examination being made by Inspector Stevenson a defect was found in an iron soil-pipe, and in some of the connexions between it and the lavatories. It was alleged by the Vestry that the joints had been made in a defective manner, but for the defence it was said that the work was carried out exactly as the specification provided it should be, and Mr. Elliott, in addressing the Court for the defendant, said his client was being prosecuted by the Vestry for carrying out the specification too faithfully. The defendant's case was that he protested to the architect against the manner in which the work was required to be done, but without avail. He (Mr. Elliott) admitted that there was no defence under the section, but he submitted that the defendant was entitled to compassion, seeing that the Vestry were prosecuting him for carrying out too faithfully the instructions of their own architect. Mr. Hopkins ordered the defendant to pay a fine of 40s., and 3*l.* 3s. costs.—*Morning Advertiser.*

BUILDING LINE DISPUTE AT CREWE.

THE case of Harrison *v.* Wood came before Mr. Justice Romer in the Chancery Division on the 31st ult., in which the plaintiff sought to enforce a covenant relating to a building line and also to restrain the defendant from encroaching beyond that line. It appeared that the defendant owned a considerable piece of land in the Western-road, Crewe, and on February 16, 1894, sold a plot to the plaintiff, the conveyance containing the covenant in question. The plaintiff built some houses on his land and the defendant retained the adjoining land, and in 1896 he built some houses on his land just to the north of the plaintiff's portion. The defendant's main building was not complained of, the complaint being that the defendant had put bay windows to the houses which encroached about 18 in. beyond the building line. The defendant alleged that the plaintiff himself had broken the covenant by putting a small cornice to his houses about half way up the elevation, and that therefore he could not rely upon the covenant as against the defendant. His Lordship looked at the photos of the property and ridiculed the idea that the small cornice, which was simply a piece of ornamental work, was an infringe-

ment of the covenant, He also ridiculed the objection to the defendant's bay windows, which, he said, had improved the property tremendously, adding, "It is a petty quarrel. Upon my word, some people are quarrelsome to say the least. How anybody could complain of this, I cannot imagine."

Mr. Yardley, the plaintiff's counsel, said that there had been a great deal of correspondence over the matter.

Mr. Justice Romer: I have no doubt about it. The smaller the matter, the greater the correspondence.

After some further observations his Lordship suggested that the matter should be settled by counsel without any further trouble, and a compromise was effected by which the plaintiff was freed from his covenant, and was at liberty to build bay windows to the same extent as defendant's, and the defendant to indemnify the plaintiff from any liability to any third party he might possibly be put to in doing so.

Order accordingly.

THE FINALITY OF AN ARCHITECT'S CERTIFICATE:

CASE IN THE QUEEN'S BENCH DIVISION.

THE case of Buckland *v.* Trood came before Mr. Justice Darling, sitting without a jury, by consent, in the Queen's Bench Division, on the 31st ult. It appeared that in 1896 Messrs. Garner & Lovelock, a firm of builders, entered into an agreement with the defendant to make some alterations on the defendant's premises. It was provided by the conditions attached to the specification that the work should be executed to the full satisfaction of the architect, and that payment should be made upon the certificate, and at the discretion of the architect. On February 5, 1897, Messrs. Garner & Lovelock assigned to the plaintiff all moneys due or to become due to them under this agreement. The first point in dispute was as to various items of the work, amounting in all to 36*l.* 17s. 7d., which the defendant alleged to be negligently executed. As to the second point, the question was whether an item of 106*l.* 3s. 6d. for granite work executed by a Mr. Whitehead, or to the plaintiff as assignee.

Mr. H. F. Dickens, Q.C. (with whom was Mr. Henriques), for the plaintiff, contended on the first point that the architect's certificate was final; and as to the second point, that Whitehead was a sub-contractor under Garner & Lovelock, and had no direct contract with the defendant.

Mr. Greene, Q.C. (with whom was Mr. Spokes), for the defendant, argued that in all the reported cases where an architect's certificate had been held to be final, there had been words to that effect in the conditions, which was not the case here. As to the granite work, it had been agreed by all parties that that portion of the agreement should be cancelled, and the work executed by Whitehead for defendant, and not for Garner & Lovelock.

His Lordship, after hearing the evidence, in giving judgment, said as to the first point he could not admit evidence contradicting the architect's certificate. That certificate was final, and the defendant was not entitled to go behind it. On the second point, he had no doubt that the arrangement by which Whitehead took over the granite work from Garner & Lovelock was entered into with Garner's consent, and on that point the defendant succeeded.

Judgment was entered for the plaintiff for 36*l.* 17s. 7d., and costs.

MEETINGS.

SATURDAY, APRIL 9.

Edinburgh Architectural Association.—Visit to Dalkeith Palace and Dalkeith Church.

MONDAY, APRIL 11.

Bristol Society of Architects.—Annual meeting. 8 p.m.

FRIDAY, APRIL 15.

Institution of Civil Engineers.—Students' visit to the Grand Junction Waterworks, Hampton.

RECENT PATENTS:

ABSTRACTS OF ACCEPTED SPECIFICATIONS.

Open to opposition until May 16.

[1897] 3,236.—STONE-SAWING AND SIMILAR MACHINES: *A. E. Leroy.*—In reciprocoting saw-mills the motion is transmitted to the frame or mounted saw by rigid bars arranged vertically, and moving in parallel positions in a vertical plane whose direction is the same as, or parallel to, the desired direction of the cuts of the saw, whilst the motion of the saw is opposite to that of the bars; the arrangement can be moved about and taken to where the blocks of stone to be cut are lying.

6,676.—A COMBINED PLUMBER'S OR SOLDERING IRON AND LAMP: *J. Westhead.*—A hollow or trough-like iron has its two sides brought to a point at its outer end; at the other is a socket set at an angle, the socket being fitted on to the nozzle of a benzoline lamp preferably of the "Swedish torch" type; the cavity of the trough-like iron may be utilised to hold a quantity of molten metal or solder when running wipe joints are being made.

7,268.—WATER CLOSETS AND FLUSHING APPARATUS: *H. Clay.*—The basin's outgo is at its back, which has an upright plane surface rounded at the corners to meet the sides, the slope of the basin bottom determines the depth o the syphon trap's dip, and a flushing rim and fan spreader discharge the flushing water at the front and down the back of the basin; it is claimed that this form of basin is independent of the position of the branch soil-pipe, and admits of the trap ventilating pipe being attached to the branch soil pipe close up to the end of the out-go without interfering with the syphonic discharge.

8,344.—BRAZING JOISTS: *D. Crowther.*—The invention consists essentially in combining with any brazing metal in one piece to fit or surround the joint a flux so applied as to form part of the brazing piece, whereby, when the piece is inserted in or placed on or between the joint, heat can at once be applied for fusing and brazing, the proportion of flux necessary to ensure the flow of the metal when fused being contained in or on the brazing piece, and not having to be supplied by hand.

9,698.—FOR STARTING THE SYPHONS OF FLUSHING CISTERNS: *W. B. H. Drayson.*—The syphon's short leg is constructed with its circular segmental part either in one piece or connected thereto; the bearings for the axis of the plunger or piston are fixed on the lower part of the short leg or on the segmental part, instead of being attached to the cistern, or separately from the syphon; the cistern can be made with a recess for receiving the short leg's segmental part, whose mouth may stand somewhat below the bottom of the cistern in order that the cistern may be quite emptied at each action of the syphon.

10,509.—RED OXIDE: *T. T. Sill.*—This relates to the manufacture of red oxide from the waste liquors of galvanising works, tin-plate works, wet copper process or other residual liquors containing iron in the form of chloride; the improvement consists in precipitating the same with milk of lime or other suitable material so that there shall always be an excess of iron, in oxidising by driving off the moisture with full exposure to the air and at a low heat, and in washing the ferrous hydrate free from soluble salts before furnacing. The spout liquor or pickle containing free hydrochloric acid is put into vats and treated with scrap iron to neutralise the free acid and increase the yield of oxide.

11,145.—TEMPORARY METALLIC ROOFING FOR HAYRICKS AND THE LIKE: *J. E. Lilley.*—A light wooden framework is constructed over the rick, &c., and upon the frame-work is fixed a roof or covering in sectional sheets of light metal, such as corrugated iron; the sheets are affixed to the rafters and to one another by sharp-pointed eye-studs hammered in, and then screwed home by any rod or pin.

11,176.—MAKING JOINTS: *J. Birtwisle.*—The method consists in making a key-hold, or key-holds, between the tube and socket and in injecting therein the molten metal or alloy or other suitable substance, which enters and fills the channels, cavities, grooves, &c., which form the key-holds.

11,903.—BRICK PRESSING: *H. Alexander.*—One end of a rocking beam is connected to the free end of a link: the link's opposite end is fulcrumed to the frame of the machine, and the pivot of the connecting rod and link is connected by a rod to a crank rotated by the power. The rocking beam's opposite end is connected to a top plunger, in which a panel may be made; the beam's up and down motion gives a short double movement at the end of its stroke, and so imparts a double pressure to the top plunger. When the beam returns to its up position, the top plunger is raised, and so the bottom plunger is raised by the lifting rods in the ordinary way. For making a panel in the brick's underside, the lower plunger is made with an internal plunger supported by levers held upwards by an adjustable spring attached to the framework, and fulcrumed to the lower plunger in such a manner that, on the latter being depressed, the internal plunger rises therein, and forces a panel or indentation in the lower side of the brick.

20,670.—MANUFACTURE OF CEMENT: *T. Holden.*—The materials are used dry, being reduced to a fine powder without the addition of water, and the powder is transferred to the kiln, and "set" between layers of fuel, the layers being connected with each other by forming columns or portions of fuel at intervals through the layers of powder.

30,004.—WASTE FITTINGS FOR SINKS AND THE LIKE: *A. A. Russell.*—A combined cut-off and strainer has (*a*) a strainer plate, in which are a series of radial openings, and (*b*) an oscillatory or slide cut-off disc, with a series of radial openings, which register with the openings in the strainer plate; thus the escape of water from the sink, and of sewer gas, &c., from the sewer or trap, can alike be prevented.

[1898] 374.—CISTERN BALL-TAPS: *O. H. Wagner.*—The rise and fall of the ball imparts a circularwise reciprocating action to the plug by means of rollers placed in angled slots of the barrel neck.

1,256.—SHOWER BATHS: *H. Hauser.*—The reservoir, preferably of glass, and graduated, is held in a frame and can be raised and lowered by a drawing rope passing over a pulley at the top of the frame and winding on an axle worked by hand; the apparatus may be used apart from a bath, and may serve for hospitals, infirmaries, manufactories, and the like.

2,142.—HOLLOW GLASS BLOCKS FOR THE CONSTRUCTION OF WALLS PERVIOUS TO LIGHT: *The Glashüttenwerke Alderhütten Actien Geselsschaft of Pensig.*—To obviate the casting of a shadow by the band of mortar, and the falling out of the glass bricks, the outer surfaces of the bricks are fashioned with lens-like projections with which correspond lens-like depressions on the inner surfaces, thus is formed a set of contiguous concavo-convex lenses (whose bounding lines form a hexagon) which disperse the light and neutralise the shadow thrown by the mortar, and the bricks are placed in a network of wire which lies in the hollows between the lenses at front and back.

2,531.—GLAZING BARS: *W. Curbstone.*—The inventor combines an iron or steel astragal (rolled or otherwise formed) and having a shouldered portion, with a soft metal clothing provided with wings or projections which form a resistance between the glass and the shoulders of the astragal; the astragal may also have a dovetailed or similarly projecting ridge on its under surface, and the glazing bars may be channelled for asbestos or other packing.

NEW APPLICATIONS.

For week ending March 26.

6,773, J. E. Stewart, Street Lanterns. 6,776, E. J. Masters, a Combination Tool for Carpenters, Joiners, and Kindred Trades. 6,781, J. & H. C. Dalglish, Enamelling of Baths and the like. 6,782, J. Murrie, Spanners, &c. 6,788, J. G. Kirtley, Pipe Joints. 6,790, H. Dearden, for Holding in Tension Window-blind Cords. 6,818, M. N. Shufflebarger, Automatic Railway Switches. 6,823, J. Clark, Gas and other Ovens. 6,831, W. O. Wood, Electric Miners' Lamps. 6,838, P. Sohège, Expansible Pulleys, &c. 6,840, C. G. Nilsson, Heater with Air Circulation. 6,853, E. Dyonnet, Easels. 6,857, Harris & Pertwel Adjustable Jaws for Spanners, Vices, and the like. 6,859, W. G. Harris, Motor Engines. 6,864, C. Fischer, Parallel Vices. 6,865, J. D. Andrews, Electrical Conductors. 6,868, C. Craig, Locking Joint or Rod Coupling. 6,875-6. Alexina M. Reid, Sink Protectors. 6,892, Moody and Others, Brush Handle and Wood Spindle Fastener. 6,893, J. A. Willmore, Sheet Metal Lathing, and Machinery for making the same. 6,900, E. Davies, Stop Cocks or Valves for Water Service Pipes. 6,902, Aldred & Carr, Details of Electric Tramways and Railways. 6,926-7, Duckett & Son and Others, Water Waste Preventers, and Soil-pipe Traps. 6,933, Malpas & Allday, Moulding Machines for Sand and the like. 6,947, G. E. Whitney, Motive Power Engines for Road Vehicles. 6,960, W. R. Morris, Self-acting Motor. 6,963, S. Z. de Ferranti, and 7,085, C. F. de Kierzkowski-Steuart, Water Turbines. 6,969, W. J. Brewer, Floating Breakwaters. 6,975, Beissbarth & Rieder, a Revolving Smoothing-iron. 6,989-92, E. Weston, Electrical Measuring Instruments. 6,994, J. Marsh, Flushing Syphon Cistern. 6,995, A. G. New, Reciprocating Engines. 6,998, J. Hammersley, Cooking Ovens. 7,000, A. R. Ferns, Forging, Sharpening, and Finishing Drills and other Tools. 7,013, R. G. Brooke, Heating Buildings. 7,019, J. H. Cowburne, Attachments to Fire-ranges. 7,021, C. Geissler, Apparatus for Taking Samples of Pulverised and Granulated materials. 7,027, S. G. Brown, Dynamo-Electric Generators and Motors. 7,047, Wigglesworth & Taylor, Combined Shower or Douche Bath and Vapour Bath. 7,054, T. White, Door Holder. 7,057, Proctor & Blaikie, Plug Switches and Connections (Electrical). 7,059, Russell & Cottrell, a Road Scarifier. 7,060, F. G. Bundy, Brushes. 7,071, C. Clayden, Hoods for Domestic and Other Fireplaces. 7,088, L. Morey, Fire or Burglar Alarm for enclosed Places. 7,090, R. Bergner, Door Closing and Checking. 7,104-5, G. F. Lebioda, Drying, Hardening, Impregnating, and Dyeing Wood. 7,126, J. G. Chadwick, Window Fasteners and Draught Excluders. 7,128, A. Smith, Sliding Sash Frames. 7,135, F. Beyer, a Wall Plug. 7,143, M. B. Church, Compounds for Coating Walls, Ceilings, or other Surfaces, or for Mouldings, Modelling, or the like. 7,150, Todd & Harker, an Electric Locomotive. 7,151, A. McQuade, treating Leather Scrap Paper or Wood Pulp, Sawdust, &c., for the Production of Imitations of other Substances. 7,155, G. Knowles, Ventilation of Buildings, Chimneys, and the like. 7,163, W. Gaines, Hinges for Doors, Gates, &c. 7,164, F. B. Herzog, Electric Signalling. 7,179, P. Germain, Telephone Posts or Stations. 7,198, E. W. Barton, Ventilating Rooms, Buildings, &c., and for Disinfection and Fire Extinction. 7,213, S. G. Edwards, a Combination Tool. 7,217, T. Jones, Brick-making Machines. 7,221, T. Wilson, Chimneys. 7,231, Sykes & Harrison, Tools for Boring out Taps, Cocks, Tapered Holes, and Tubes. 7,237, E. W. Richmond, Gas-heated Water Heaters or Boilers. 7,240, C. H. Knight, a Lever for Bending Metal to form "Stair Noseings." 7,247, F. Appleyard, Ventilation of Rooms. 7,251, Hodge & Porter, a Combined Valve Cover and Joint for Pumps, also applicable to the Tops of Manholes or Removable Covers. 7,258, J. Morrison, Lavatory Basins and Sinks. 7,267, J. W. Butler, Magnesian Cement. 7,268, G. R. Geiser, Instrument for Ascertaining the Radius or the Centre of a Circle to which Sides of an Angle are Tangential at given points. 7,284, T. & J. J. Burgess, Catches, Fastenings, and other Furniture for Windows, Doors, &c. 7,297, R. Stanley, Machinery for Moulding, Pressing, and Delivering Tiles, Quarries, Bricks, &c. 7,323, Tanner & Lowcock, Safety Device for Hoists and Lifts. 7,324, W. Schmidt, a Wire Rope "Stopper" or "Grip." 7,346, A. H. Crawford, a Fireproof Floor. 7,366, W. Joy, Portland Cement. 7,394, Parkes & Wagner, a Screw-down Tap.

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

March 23.—By DACRE & SON (at Pudsey).

Pudsey, Yorks.—"Troydale Farm," 27 a. 1 r. 13 p., f.	£2,400

March 24.—By C. C. & T. MOORE.

Stepney.—21 and 23, Repton-st., c., r. 43*l.* 8s.	425
Barking, Essex.—30 and 32, New-rd., f., r. 48*l.* 2s.	525

By NEWBON, EDWARDS, & SHEPHARD.

Clerkenwell.—3, Newcastle-pl., f., e.r. 100*l.*	1,500
Holloway.—265, Camden-rd., u.t. 59½ yrs., g.r. 13*l.* 12s. 6d., e.r. 200*l.*	2,000
Stoke Newington.—134 and 136, Albion-rd., f., r. 130*l.*	2,400
Islington.—46, Gerrard-st., u.t. 45½ yrs., g.r. 6*l.*, r. 45*l.*	410
27, Cloudesley-st., u.t. 18¾ yrs., g.r. 2*l.*, e.r. 50*l.*	375
Holloway.—38, Wray-cres., u.t. 67 yrs., g.r. 6*l.*, e.r. 60*l.*	525
3, Despard-rd., u.t. 86 yrs., g.r. 5*l.* r. 32*l.*	400
135, Blackstock-rd., u.t. 69 yrs., g.r. 6*l.* 6s., r. 40*l.*	360
Dalston.—76, Graham-rd., u.t. 61 yrs., g.r. 5*l.*, e.r. 46*l.*	440
Clapton.—64 and 78, Reighton-rd., u.t. 83 yrs., g.r. 13*l.* 10s., r. 58*l.*	600

By STIMSON & SONS.

Newington.—145, Newington Butts, and 1 to 11 (odd), Hurlbutt-pl., f., r. 166*l.*	3,000
Lambeth.—93, Lambeth Palace-rd., u.t. 11 yrs., g.r. 9*l.*, e.r. 65*l.*	230
Walworth.—20, 22, and 52, Deacon-st., u.t. 45 yrs., g.r. 17*l.*, r. 137*l.*	910
127, Walworth-rd., u.t. 55½ yrs., g.r. 20*l.*, e.r. 90*l.*	585
1 to 9 (odd), Dean's-bldgs., f., r. 105*l.* 6s.	1,000
Fulham.—King's-rd., i.g.r. 12*l.*, u.t. 54½ yrs., g.r. 3*l.*	180
Walthamstow.—1 to 9, 11, 13, and 15, Missiongrove, u.t. 89 yrs., g.r. 54*l.*	1,780
Pimlico.—Cambridge-st., f.g.r. 18., reversion in 29 yrs.	185
Dulwich.—86, Henslow-rd., f., r. 37*l.*	560
Kentish Town.—Prince of Wales-rd., i.g.r. 55*l.*, u.t. 12½ yrs., g.r. 12*l.*	315

By WAGSTAFF & SONS.

Hornsey Rise.—Nos. 37 and 39, u.t. 74 yrs., g.r. 9*l.*	475
Highbury.—67, Highbury New Pk., u.t. 52 yrs., g.r. 15*l.*, e.r. 120*l.*	990
Holloway.—19 to 25 (odd), Hercules-rd., u.t. 54 yrs., g.r. 21*l.*,	870

COMPETITIONS, CONTRACTS, AND PUBLIC APPOINTMENTS.

COMPETITIONS.

Nature of Work.	By whom Advertised.	Premiums.	Designs to be delivered.
Water Supply Scheme	Cricklade and Wootton Bassett (Wilts) R.D.C.	21*l.*; 10*l.* 10*s.*	April 30
Technical School	Trowbridge Technical Education Com.	40*l.*; 30*l.*; 20*l.*	May 28
*Chapel, &c.	County Boro of Salford	50*l.*; 30*l.*; 20*l.*	June 7
Sewerage Scheme	Formby Parochial Com.	100*l.*; 50*l.*; 25*l.*	July 1

CONTRACTS.

Nature of Work or Materials.	By whom Required.	Forms of Tender, &c. Supplied by	Tenders to be delivered.
Sanitary Works at Workhouse Infirmary	Belfast Union	Young & Mackenzie, Engr. Donegall-sq. East, Belfast	April 12
Road Works, Wedmore-road, &c.	Cardiff Corp.	W. Harpur, C.E. Town Hall	do.
Additions to School, Oswaldtwistle, Lancs.	Committee	J. Yates, Archt. 3, Tackett's-street, Blackburn	do.
Pumping Station, Fadborough	Rye T.C.	W. Dawes, Bank-chmrs. Rye	do
Laying Cast Iron Water Mains	do.	do.	do.
Sewage Purification Works	Dunkinfield Sewerage Board	Newton & Co. Engr. 17, Cooper-st. Manchester	do.
Paving Bricks, &c.	Crewe T.C.	G. Eaton-Shore, Boro. Surv. Earle-street	do.
Road Metal	Staffs. C.C.	J. Moncur, Surv. County Council-bldgs. Stafford	do.
*Road Materials	Bromley U.D.C.	Council Offices	do.
Outfall Sewer near Perth Harbour	Perth Burgh Commrs.	R. M'Killop, 12, Tay-st. Perth	April 13
Club and House, Hexthorpe, near Doncaster		W. Hempsell, Hexthorpe, near Doncaster	do
Re-slating Farm House, &c. Hillhead of Glack, Aberdeen		Edmonds & Ledingham, 16, Bridge-st. Aberdeen	do.
Laundry at Workhouse	Farnham Union	Friend & Lloyd, Archt. Grosvenor-rd. Aldershot	do.
Additions to Victoria Mills, West Vale, Halifax	Sutcliffe & Sons	W. C. Williams, Archt. 29, Southgate, Halifax	do.
Sewerage Works, Distington	Whitehaven R.D.C.	G. Boyd, C.E. 33, Queen-st. Whitehaven	do.
Dwelling House, Treawle, Probus, Cornwall		G. Gow, Archt. Tregothnan Office, Truro	do.
Road Materials	Cannock (Staffs.) R.D.C.	H. M. Whitehead, Brook House, Brewood, Cannock	do.
House, Coldbrook, Abergavenny		B. J. Francis, Archt. Abergavenny	do.
Cast Iron Water Pipes, &c.	Ryton-on-Tyne U.D.C.	J. P. Dalton, Engr. Council's Offices	do.
Alterations to Buildings, Museum Court	Norwich Union	J. B. Pearce, Archt. 15, Upper King-st. Norwich	do.
Sewerage Works, Leece	Ulverston R.D.C.	J. Greenwood, Surv. Union Offices, Ulverston	do.
Sewers, Washington, Durham	Chester-le-Street R.D.C.	G. Lymon, Surv. Birtley	do.
Additions to Brewery, Cotehill, Burnley-road	Halifax Brewery Co.	W. C. Williams, Archt. 29, Southgate, Halifax	April 14
Dwelling House, Cottage, &c. Upperby Nurseries		A. W. Johnston, Archt. 81, Castle-st Carlisle	do.
Additions to House, Old Newton	G. Fuller	H. G. Bishop, Archt. Stowmarket	do.
Tramway Bridge and Incline	Aldershot Gas & Water Co.	A. F. Wilson, 103, Victoria-road, Aldershot	do.
Alterations to Turf Hotel, Stockton	J. J. Robinson	W. Duncan, Archt. 35, Albert-rd. Stockton	do.
Concrete Galleries, House, &c. Crowden, Manchester		H. T. Crook, C.E. 9, Albert-square, Manchester	do.
Sewerage Works	Wednesfield U.D.C.	R. E. W. Berrington, Engr. Lichfield-st. Wolverhampton	do.
Wesleyan Church, Gorleston, Great Yarmouth	Rev. A. Wainwright	Gordon, Lowther, & Co. Finsbury House, London	do.
Road Materials	Midsomer Norton (Somt.) U.D.C.	Surveyor, Market Hall, Midsomer Norton	April 15
Reconstruction of Drainage System, Borough Asylum	Sunderland Asylum Visitors	J. Little, Engr. Viaduct-Chmbrs. Carlisle	April 16
Club Premises	Ferndale Conservative Club	A. O. Evans, Archt. Pontypridd	do.
*Four Cell Destructor Plant	City of York	A. Creer, City Engr. Guildhall, York	do.
Concrete Footpath, &c.	Chester-le-Street R.D.C.	G. W. Ayton, Surv. Council's Offices	do.
*New Quarters for Nurses	Sussex County Hospital	T. T. Cawthorn, 170, North-street, Brighton	do.
*Iron Water Tower, Sanitary Fittings, Alterations, &c. &c.	Farnham & Hartley Wintney Sch. District	A. Ansell, 21, Buckingham-st Strand, W.C.	do.
Granite	Lutterworth R.D.C.	J. C. Coate, Surv. Bittesweil, Lutterworth	April 17
Bakery, Gillingham-road	New Brompton (Kent) Indus. Soc.	E. J. Hammond, Archt. 111, High-st. New Brompton	April 18
*New Board Room and Offices	Newport Union	Lawrence & Son, Dock-street, Newport	do.
Road Works, Walnut Tree Close	Guildford T.C.	C. G. Mason, C.E. Tunsgate, Guildford	do.
*Iron, Concrete, and Stoneware Pipe Sewers, &c. &c.	Wimbledon U.D.C.	C. H. Cooper, Offices, Broadway, Wimbledon	do.
*Cast-Iron Sewer Ventilating Columns, &c.	Beckenham U.D.C.	J. A. Angell, Council Offices	do.
Laundry Buildings	York Union	Penty & Penty, Archt. Lendal-chambers, York.	April 19
Water Supply	Mansfield Woodhouse U.D.C.	G. & F. W. Hodson, Engr. Loughborough	do.
*Road Making and Paving	Willesden D.C.	O. C. Robson, Offices, Dyne-road, Kilburn	do.
Sewerage Works, Regent-road	Salford Corp.	Borough Engineer, Town Hall	April 20
Six Houses and Thirty-seven Cottages, Shildon	N. E. Ry. Co.	W. Bell, Archt. Railway station, York.	do.

CONTRACTS—*Continued.*

Nature of Work or Materials.	By whom Required.	Forms of Tender, &c. Supplied by	Tenders to be delivered.
Boring Works, Liscard, Cheshire	Wallasey U.D.C.	J. H. Crowther, Engr. Gresty Road, near Birkenhead	
*Sewage Disposal Works	Ilford U.D.C.	Taylor, Sons, & Crimp, 27, Gt. George-street, S.W.	April 21
Retaining Wall, Gibbon-street, Holt Town	Manchester Corp.	City Surveyor, Town Hall	do.
Shipbuilding Slip	Boston (Lincs.) Harbour Commrs.	W. H. Wheeler, C.E. Marplace, Boston	do.
*Fire and Police Station	Sheffield Corp.	J. Norton, Archt. George-street, Sheffield	do.
Alterations to Asylum, Rosslynlee, near Edinburgh	Midlothian, &c. Lunacy Board	Dr. R. Anderson, Archt. 16, Rutland-square, Edinburgh	April 22
*Laying 3½ miles 12 in. Pipes	Newmarket Waterworks Co. Ltd.	J. B. Everard, 6, Millstone-lane, Leicester	April 23
Steel Girder Bridge over Irwell, Peel Park	Salford Corp.	Borough Engineer, Town Hall	do.
*Paving Works	St. Luke's Vestry	Surv. Dept. St Luke's Vestry Hall, City-rd. E.C.	April 26
Lock-up, Norton Woodseats, near Sheffield	Standing Joint Committee	J. Somes Story, County Offices, St. Mary's Gate, Derby	April 27
Agricultural School, Newport, Salop	Governors, Harper Adams Foundation	H. Teather, Archt. Queen-street, Cardiff	do.
*Kerbing, Channelling, &c. Roadway	Kensington Guardians	Offices, Marloes-road, Kensington, W.	April 28
Girder Bridge over River Seiont	Carnarvon Corp.	W. Wawn, C.E. Anglesey Inn, Carnarvon	do.
*Steel Bridge (Three Spans of 58ft. each)	Sheffield Corp.	C. F. Wike, Town Hall	April 29
Re-building Swan Inn, Hedden-on-the-Wall	Newcastle Breweries, Ltd.	J. Oswald, Archt. 33, Moseley-street, Newcastle	April 30
Gymnasium, Grammar School, St Bees, Cumberland		G. Dale Oliver, Archt. 5, Lowther-street, Carlisle	No date
Two Houses and Shops, Thorpe Hesley, near Rotherham		H. Smith, Archt. Thorpe Hesley	do.
Villa, Langland, near Swansea		Wilson & Moxham, Archt 15, Castle-street, Swansea	do.
Re-building Bird Inn, Wylan-on-Tyne		J. Oswald, Archt. 33, Moseley-street, Newcastle-on-Tyne	do.
Church Institute, near Cleethorpes		C. H. Fowler, Archt. The College, Durham	do.
Stone Building, Glossop		Olive & Partington, Turn Lee Mills, Glossop	do.
Business Premises, High-street, King's Lynn	Jermyn & Sons	H. J. Green, Archt. Tuesday Market Place, King's Lynn	do.
Villa, Robin Hood's Bay, Yorks.	Mr. Busby	C. Lightfoot, 43, Queen-street, Scarborough	do.
Synagogue, London, E.		F. W. Woolf, 32, Jane-st Commercial-road, E.	do.
Church, Westwood, Notts.		P. H. Currey, Archt. Market-place, Derby	do.
Additions to Bunchrew House, near Inverness		W. L. Carruthers, Archt. 42, Union-st. Inverness	do.
Monastery, Clonard, Belfast	Rev. P. Griffith	J. J. McDonnell, Archt. 27, Chichester-st. Belfast	do.
Tower, Christ Church, Fenton		Lynam, Beckett & Lynam, Archt. Stoke-on-Trent	do.
Business Premises, North-road, Middlesbrough		G. Wallis, North-road, Middlesbrough	do.
Friends' Meeting House, High-street, Swansea		Wilson & Moxham, 15, Castle-street, Swansea	do.
Factory, Bristol		Fred. Shove, Archt. 8, Colston-avenue, Bristol	do.
Repairs to Gasworks, &c.	Navan Gas Co.	M. Morgan, Gas Offices, Navan	do.
Roads and Drainage Works, Barry Dock, Cardiff	Sully Property Co. Ltd.	Veall & Sant, Archt Cardiff	do.
Eight Houses, Avenel-ter. Allerton, Yorks.		B. Drake, Archt. 142, Allerton-road, Allerton	do.
Fourteen Houses, Ashton-under-Lyn		T. D. Lindley, Archt. Market-avenue, Ashton-under-Lyne	do.
Two Villas, Pollard-lane, Bradford		F. Wild, Archt. 7, Charles-street, Bradford	do.
Business Premises, Howard-street Sheffield	Walker & Hall	Hall & Fenton, Archt. 14, St. James's-row, Sheffield	do.
Two Houses and Shops, Thorpe Hesley, near Sheffield		Herbert Smith, Archt. Thorpe Hesley	do.
Laundry, Cork	Metropole Hotel Co.	A. Hill, Archt. 22, St. George's-street, Cork	do.
House, &c. Brignall, near Barnard Castle		J. Harris, Archt. Ashbourne-chmbrs. Notts.	do.
Priest's House, Clones, Ireland		Rev. Canon O'Neill, The Sacristy, Sacred Heart Church, Clones	do.
Presbyterian Church, Harehills-avenue, Leeds		W. H. B. Evers, Archt. 26, Bond-street, Leeds	do.
Farmhouse, &c. Brignall, nr. Barnard Castle		J. T. B. Baker, Rokeby-grove, Barnard Castle	do.
Machine Shops, &c. Hebburn-on-Tyne		R. & W. Hawthorn & Co. Hebburn, Newcastle-on-Tyne	do.
*Draining, Curbing, Paving, &c. about three miles of roads	London Necropolis Estate	Office, 6, Broadway, Woking	do.
*Reconstruction of Drainage at Asylum	Sunderland Boro' Asylum	J. Little, Viaduct-chmbrs. Carlisle	do.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Application to be in.
Assistant Surveyor and Building Inspector	Litherland (Lancs.) U.D.C.	110*l.*	April 16
*Manual Training Instructors	Sch. Bd. for London	See Advertisement	April 23
*County Surveyor	Middlesex C.C.	700*l.* a year, rising to 850*l.*	May 3

Those marked with an asterisk (*) are advertised in this Number. ***Competitions, p. iv.*** ***Contracts, pp. iv. vi. & viii.*** ***Public Appointments, pp. xvii. & xviii.***

By WYATT & SON (at Angmering).

Angmering, Sussex.—High-st., seven plots of building land, f. £514
High-st., a freehold cottage, r. 50*l.* 125

By HEPPER & SON (at Leeds).

Leeds.—140, 148, and 150, Burley-rd., f., r. 55*l.* 10*s.* 1,072

By WATERER & DICKINS (at Bromley).

Downe, Kent.—Bromley-rd., six freehold cottages, r. 87*l.* 2*s.* 800
Farnborough-rd., two freehold houses, e.r. 50*l.* 710
Cross-rd., &c., 46 plots of land, f. 1,602

March 25.—By F. DOD & CO.

Wood Green.—Mayes-rd., f.g.r. 10*l.*, reversion in 65½ yrs. 250
106, Mayes-rd., u.t. 65½ yrs., g.r. 5*l.* 250
Stoke Newington.—1, Stoke Newington Common, u.t. 75½ yrs., g.r. 7*l.* 10*s.*, e.r. 50*l.* 435

By Messrs. GIBSON.

Holloway.—36 and 38, Yerbury-rd., u.t. 69 yrs., g.r. 6*l.*, r. 74*l.* 765
Islington.—1 and 2, Smith's-bldgs., f., r. 40*l.* 700

By J. HIBBARD & SONS.

Clapton.—34 and 38, Powell-rd., f., r. 76*l.* £1,115
Rotherhithe.—12 and 14, Cornbury-rd., u.t. 77 yrs., g.r. 10*l.* 370
Hornsey.—91, Alexander-rd., u.t. 81 yrs., g.r. 6*l.* 6*s.*, e.r. 28*l.* 270

By JONES, LANG, & CO.

City of London.—Farringdon-av., i.g.r. 236*l.* 4*s.*, reversion in 76 yrs. 6,375
Enfield.—Nag's Head-rd., a plot of building land, 1¼ a., f. 800

By HAMPTON & SONS.

Putney.—51 and 53, Werter-rd., u.t. 76 yrs., g.r. 17*l.* 10*s.*, r. 90*l.* 750
24, 26, and 34, Oxford-rd., u.t. 80 yrs., g.r. 27*l.*, r. 195*l.* 1,795

By SEDGWICK, SON & WEALL (at Rickmansworth).

Rickmansworth, Herts.—High-st., "The Elms," and 15 a. 1 r. 14 p., f., r. 160*l.* 2,750
Church-st., The Town Wharf Estate, area 12 a., f. 3,120

Harefield, Middx.—"Taylor's Meadow," 12 a. 2 r. 15 p., f. £1,500

March 28.—By NOKES & NOKES.

Catford.—8, Nelgarde-rd., u.t. 90 yrs., g.r. 7*l.*, e.r. 40*l.* 405
Kentish Town.—22, Hedley-st., f., r. 40*l.* 615
Stroud Green.—2, Mount Pleasant Villas, u.t. 77½ yrs., g.r. 9*l.*, r. 48*l.* 500

By W. W. JENKINSON.

Wandsworth.—Luscombe-st., &c., f., g.r. 82*l.* 10*s.* 1*d.*, reversion in 15½ yrs. 3,300

By EASTMAN BROS.

Forest Hill.—76, Honor Oak-rd., u.t. 23¾ yrs., g.r. 28*l.*, e.r. 120*l.* 350

By ELLIOTT, SON & BOYTON.

Cavendish-sq.—6, Henrietta-st., u.t. 28 yrs., g.r. 110*l.* 2,320

By J. H. HIBBARD.

Theydon Bois, Essex.—Piercing Hill, "Purlieu," and about 2 a., f. 2,375

Islington.—1, Copenhagen-st., u.t. 21 yrs., g.r. 4*l.*, r. 55*l.* £370
5 and 7, Denmark-st., u.t. 21 yrs., g.r. 12*l.*, r. 76*l.* 410
Lee.—108, High-rd., area 8,760 ft., f. 830

By J. W. KEMSLEY.

Woodford Bridge.—A freehold baker's shop and block of land 1,090
Woodford.—Horn-lane, a cottage and five plots of land, f. 480
Manor-rd., Woodbine Cottage, c., r. 15*l.* 12s. .. 295
Chigwell Row, Essex.—"The Doves' Nest," and nine cottages in rear, f. 1,250

By J. C. PLATT.

Maidenhead Bridge, Berks.—The "Riviera Hotel," with furniture, &c., u.t. 65 yrs., g.r. 80*l.* 6,000
Hammersmith.—77 and 79, Bridge-rd., c., e.r. 85*l.* 1,380
Acton.—1, Oldfield-ter., u.t. 79 yrs., g.r. 10*l.*, r. 38*l.* 405
Fulham.—2, Homestead-rd., u.t. 81 yrs., g.r. 6*l.* .. 310

By WHITE, BERRY, & TAYLOR.

Soho.—10 and 11, Moor-lane, f., r. 81*l.* 2,520
34, Church-st., f., r. 50*l.* 1,400

By EASTER & WRIGHT (at Eastbourne).

Eastbourne.—Sea Side-rd., "The Elms Estate," and 1¾ a., f. 16,000
Avenue-rd., a plot of land, 2 r. 8 p., f. 4,400
Avenue-rd., a freehold villa, r. 100*l.* 1,675
Hardwick-rd., "Tryfan," f. 1,950

By W. LUDLOW & BRISCOE (at Birmingham).

Moseley, Staffs.—Wake Green-rd., "Oakwood," area 3,915 yds., f. 2,200
Tyseley, Warwick.—Warwick-rd., 12 plots of land, area 16,686 yds., f. 2,607
Knight's-rd., 2 plots of land, area 4,850 yds., f... 748

March 29.—By H. DONALDSON & SON.

Kentish Town.—11, 12, 13, and 14, Litchem-st., u.t. 56½ yrs., g.r. 26*l.* 660
1, St. John the Evangelist-rd., u.t. 64 yrs., g.r. 5*l.* 10s., r. 42*l.* 455
Willesden Green.—18, Belton-rd., u.t. 81 yrs., g.r. 6*l.*, r. 26*l.* 155
Hackney.—8 and 9, Mentmore-ter., u.t. 75 yrs., g.r. 13*l.*, r. 60*l.* 605
Dalston.—135 and 137, Queen's-rd., u.t. 21 yrs., g.r. 16*l.*, r. 75*l.* 400

By R. PRICE & SON.

Wimbledon.—34 to 50 (even), Haydon's-rd., f., r. 213*l.* 2,100
Balfour-rd., 7 plots of building land, f. 365

By J. B. ROSEVEAR.

Fulham.—35 to 43 (odd), Dimsdale-rd., u.t. 69¾ yrs., g.r. 20*l.*, r. 140*l.* 8s. 970

By ROUCH & PARKHOUSE.

Holloway.—19, 31, 57, and 59, Hampden-rd., f., r. 124*l.* 16s. 1,015

By SEGRAVE, BROWETT & TAYLOR.

Plumstead, Kent.—Lakedale-rd., f., g.r. 65*l.* 2s., reversion in 88 yrs. 1,660
Tewson-rd., f., g.r. 56*l.* 5s., reversion in 88 yrs. .. 1,540

By W. ROLFE (at Masons' Hall Tavern).

Notting Hill.—Bevington-rd., "The Malvern" p.-h., u.t. 48 yrs., r. 200*l.*, with goodwill 7,800

By HENSHAW, BEARD & WATTS (at Masons' Hall Tavern).

South Lambeth.—Thorne-rd., "The Duke of Cambridge" p.-h., f., g.r. 50*l.*, reversion in 63 yrs.. 1,450
Acton.—Birkbeck-rd., f.g.r. 16*l.*, reversion in 83 yrs. 480

March 30.—By RUSHWORTH & STEVENS.

Barnet, Herts.—Park-rd., a freehold building estate, area 3 a. 3 r. 1,050
Tottenham.—289, High-rd., u.t. 78 yrs., g.r. 7*l.* 7s. 285

By HARMAN BROS.

West Smithfield.—29 and 31, Cow Cross-st., u.t. 65 yrs., g.r. 95*l.*, r. 300*l.* 3,020
31A and 31B, Cow Cross-st., area 1,350 ft., f., r. 125*l.* 12s. 1,720
Hoxton.—155, St. John's-rd., u.t. 8 yrs., g.r. 6*l.* 13s. 4d., e.r. 55*l.* 120
Stoke Newington.—67, Lordship-rd., and 2 acres, u.t. 22 yrs., g.r. 11*l.* 700
Kingsland.—193, Kingsland-rd., u.t. 45 yrs., g.r. 7*l.* 7s., r. 55*l.* 610
Anerley.—37, Stodart-rd., u.t. 78 yrs., g.r. 5*l.* 10s., r. 32*l.* 250
Plaistow.—88 to 98 (even), Emma-rd., u.t. 89 yrs., g.r. 18*l.* 18s. 370

By MOSS & GRAY.

Leytonstone.—14 to 22 (even), Denmark-st., u.t. 67 yrs., g.r. 10*l.* 790

By PROTHEROE & MORRIS.

Clapton.—Millfield-rd., the Pond Lane Nursery, f., with goodwill 3,350

By R. TIDEY & SON.

De Beauvoir Town.—86, Buckingham-rd., u.t. 27 yrs., g.r. 5*l.*, r. 36*l.* 300

By A. DOWELL (at Edinburgh).

New Deer, Aberdeenshire.—"The Estate of Allathan," area 1,086 a., r. 942*l.* 16,120

By SWAN WOODCOCK (at Stratford).

Upton Park.—74, 76, 78, and 80, Tudor-rd., f., r. 114*l.* 8s. 1,090
Stratford.—96, 98, 100, and 102, Crownfield-rd., u.t. 80 yrs., g.r. 18*l.*, r. 104*l.* 760

By ALEXANDER DOWELL (at Edinburgh).

Edinburgh.—North Bridge-st., &c., a large building site 120,000
North Bridge-st., &c., a building site 35,000

By FAREBROTHER, ELLIS, & Co. (at Pinner).

Pinner, Middlesex.—Waxwell-lane, six plots of land, f. 459
Love-lane, eight plots of land, f. 616

By C. RAWLEV CROSS & Co. (at Ealing).

Ealing.—33 and 35, Shakespear-rd., f., e.r. 110*l.*.. 1,435

March 31.—By H. HOLMES & Co.

City of London.—19, Watling-st., u.t. 60 yrs., g.r. 408*l.*, r. 650*l.* 1,250
Marylebone.—13, Bolsover-st., u.t. 6½ yrs., g.r. 26*l.*, e.r. 156*l.* 355

By LONG & FARLOW.

Norwood.—153, 155, and 157, Hamilton-rd., u.t. 954 yrs., g.r. 6*l.* 10s., r. 87*l.* 4s. 1,110
6 to 9, East-st., and 1 to 14, East-pl., u.t. 12, 25¼, and 39¾ yrs., g.r. 17*l.* 8s. 675
Croydon.—217 and 219, Whitehorse-rd., f. 370

By SPARROW & SON.

New Southgate.—Beaconsfield-rd., "Hillside," f., r. 42*l.* 620
Finchley.—7, Thyra-grove, f., e.r. 55*l.* 730
Hornsey.—27 and 29, Glebe-rd., u.t. 93½ yrs., g.r. 14*l.*, r. 89*l.* £855

By O. R. GREEN & Co.

Islington.—35, Arlington-sq., u.t. 29 yrs., g.r. 5*l.* 5s., e.r. 55*l.* 455
87, Arlington-st., u.t. 38½ yrs., g.r. 5*l.* 10s., r. 36*l.* 325
Stoke Newington.—Mildmay-pk., f.g.r. 4*l.*, reversion in 54 yrs. 205

By HUNTER & HUNTER.

Holloway.—116, Cottenham-rd., u.t. 56¾ yrs., g.r. 5*l.* 14s., r. 39*l.* 240
Maida Vale.—34, Warwick-rd., u.t. 49¾ yrs., g.r. 12*l.* 1,120
Marylebone.—7, 8, and 9, Saville-st., u.t. 1 yr., g.r. 36*l.*, r. 155*l.* 155
Clerkenwell.—12 to 15, Bowling Green-lane, and 5 to 8, Robert's-pl., u.t. 10¼ yrs., g.r. 45*l.*, r. 174*l.* 475
Camden Town.—4, 6, 8, and 10, Hampshire-st., u.t. 48½ yrs., g.r. 21*l.* 800

By NEWBON, EDWARDS, & SHEPHARD.

Highbury.—97, Riversdale-rd., u.t. 72½ yrs., g.r. 8*l.* 8s., r. 36*l.* 320
Holloway.—2, Kingsdown-rd., u.t. 57 yrs., g.r. 5*l.* 3s., r. 67*l.* 650
36 and 38, Fairmead-rd., u.t. 69 yrs., g.r. 18*l.*, r. 100*l.* 1,035
5, Furlong-rd., u.t. 36 yrs., g.r. 4*l.*, r. 55*l.* 475
Holloway-rd., &c., c.g.r. 87*l.* 10s., reversion in 40 yrs. 2,800
Harringay.—Green-lanes, f.g.r. 48*l.*, reversion in 99 yrs. 1,415
Wood Green.—Caxton-rd., f.g.r. 10*l.* 10s., reversion in 88 yrs. 270
Islington.—65, Essex-rd., f., r. 50*l.* 800
28, Almeida-st., u.t. 33 yrs., g.r. 8*l.*, e.r. 48*l.* 370

By J. A. & W. THARP.

Holloway.—15, Crayford-rd., u.t. 54 yrs., g.r. 6*l.*, r. 38*l.* 375
Bromley-by-Bow.—41 to 51 (odd), Ettrick-st., u.t. 75 yrs., g.r. 25*l.* 1,060
Wanstead.—Addison-rd., f.g.r. 6*l.*, reversion in 77 yrs. 160
Grays, Essex.—London-rd., "Hilldrop House," u.t. 93 yrs., g.r. 5*l.*, r. 55*l.* 760
Barking, Essex.—18 and 20, Longbridge-rd., f., r. 50*l.* 800

By STIMSON & SONS.

St. Pancras.—Euston-rd., f.g.r.'s 408*l.* 8s., reversions varying from 22½ to 34¾ yrs. 15,395
Euston-rd., f.g.r.'s 460*l.*, reversion in 69 yrs..... 15,050
Duke's-rd., f g.r.'s 215*l.*, reversion in 69 yrs..... 6,970

By T. G. WHARTON.

Clapham.—350, Clapham-rd., f., r. 60*l.* 1,170
Finsbury Park.—26, Portland-rd., u.t. 60 yrs , g.r. 12*l.* 12s., r. 50*l.* 500
Holloway.—3, Bedford-ter., u.t. 61 yrs., g.r. 5*l.*, r. 24*l.* 195
Forest Hill.—24, Kilmorie-rd., u.t. 85 yrs., g.r. 2*l.* 11s., r. 30*l.* 340
Catford.—Vancouver-rd., "The Nutshell," u.t. 85 yrs., g.r. 5*l.* 10s., r. 33*l.* 370
Norwood.—224, Gipsy-rd., u.t. 80 yrs., g.r. 8*l.*, r. 40*l.* 390

By WEATHERALL & GREEN.

Piccadilly.—A8, The Albany, f., r. 130*l.* 1,075
Whitechapel.—Colchester-st., f.g.r. 30*l.*, reversion in 17 yrs. 1,275
Colchester-st., f.; rentals of 100*l.*, for 27 yrs. 2,475
Colchester-st., f.g.r. 10*l.*, reversion in 67½ yrs. .. 310
Colchester-st., f.g.r. 12*l.*, reversion in 4 yrs. 900
32 and 33, Colchester-st., f., r. 99*l.* 16s. 1,535
12 and 12A, Colchester-st., f., r. 91*l.* 4s. 3,025
Colchester-st., f.g.r. 24*l.*, reversion in 30 yrs. .. 750
14, Colchester-st. (site of), area 1,600 ft., f..... 1,050

Contractions used in these lists.—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; e.r. for estimated rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; yd. for yard, &c.

PRICES CURRENT OF MATERIALS.

TIMBER.

Greenheart, B.G.	ton	8/0/0 0/0/0
Teak, E I....load		9/0/0 14/0/0
Sequoia, U.S.ft.cu.		1/8 1/10
Ash, Canada, load		2/17/6 4/2/6
Birch, do.....		2/17/6 4/10/0
Elm, do.....		3/12/6 4/12/6
Fir, Dantsic, &c..		1/11/0 2/11/0
Oak, do.....		2/4/0 3/4/0
Canada		3/15/0 5/0/0
Pine, Canada red		c/c/o o/o/o
Do. yellow		2/5/0 4/5/0
Lath, Dantsic,fath		4/10/0 5/10/0
St. Petersburg..		5/0/0 6/10/0
Wainscot, Riga, &c., log.....		3/12/6 5/10/0
Odessa, crown....		3/12/6 5/10/0
Deals, Finland 2nd & 1st std 100		7/15/0 8/5/0
Do. 4th & 3rd ..		7/15/0 8/5/0
Do. Riga		6/5/0 7/5/0
St. Petersburg, 1st yellow		9/15/0 12/5/0
Do. 2nd yellow.		b/15/0 10/5/0
Do. white.....		8/5/0 11/5/0
Swedish		8/15/0 15/5/0
White Sea		9/5/0 13/15/0
Canada, Pine 1st		19/5/0 25/5/0
Do. do. 2nd....		13/15/0 16/5/0
Do. do. 3rd, &c.		6/5/0 9/15/0
Do. Spruce, 1st		10/0/0 11/10/0
Do. do. 3rd and 2nd		7/10/0 8/10/0
New Brunswick		7/c/o 7/11/0
Battens all kinds		5/0/0 18/0/0
boards, sq., 1 in. prep. 1st.....		9/6/0 17/0/0
Do. 2nd		8/0/0 13/6/0
Other qualities—		6/6/0 7/6/0
Cedar, Cuba, ft.		/4 /4½
Honduras, &c.		/3¾ /4½
Mahogany, Cuba		/5 /6½
St. Domingo, cargo av.		/4½ 0/1/3
Mexican, do. do.		/3¾ /4
Tobasco, do. do.		/4 /6½
Honduras, do.		/4½ /6
Box, Turkey, ton		4/0/0 15/0/0
Rose, Rio		7/0/0 14/0/0
Bahia		6/0 0 12/0/0
Satin, St. Doming.		0/0/5 0/1/0

TIMBER *(continued)*.

Satin, Porto Rico		0/c/6 c/1/6
Walnut, Italian ..		0/-/3 c/0/7

METALS.

Iron—Pig, in Scotland .....ton		2/6/1½ 2/6/4½
Bar, Welsh, in London		5/15/0 5/17/6
Do. do. at works in Wales		5/10/0 5/12/6
Do. Staffordshire, in London.....		6/5/0 7/10/0
COPPER — British cake and ingot		£5/c/o 55/10/0
Best selected ..		55/15/0 56/5/0
Sheets, strong..		6 /-/o o/c/o
Chili bars		51/2/6 c/o/o
YELLOW MTL lb.		5d. 5½d.
LEAD — Pig Spanish ....ton		13/0/0 o/o/o
English com. bands		13/5/0 o/o/o
Sheet, English 6 lbs. per sq. ft. and upwards ..		14/5/0 c/o/o
Pipe.....		14/15/0 o/o/o
ZINC — English sheet.....ton		20/5/0 o/c/o
Vieille Montagne		21/10/0 o/o/o
Spelter		18/10/0 18/12/6
TIN—Straits		65/5/0 o/o/o
Australian.....		65/10/0 66/o/o
English Ingots..		67/10/0 68/10/0
Banca		61/o/o o/o/o
Billiton		59/15/0 60/c/o

OILS.

Linseed .....ton		15/15/0 o/o/o
Cocoanut, Cochin		27/15/0 c/o/o
Do. Ceylon.....		22/o/o o/o/o
Palm, Lagos.....		21/15/0 o/o/o
Rapeseed, English pale		27/10/0 o/o/o
Do. Brown		26/o/o c/o/o
Cottonseed ref....		14/5/0 15/5/0
Oleine.....		13/10/0 14/10/0
Lubricating U.S.		c/5/3 o/7/6
Do. Black		o/5/o o/6/6
TAR — Stockholm barrel		1/o/o o/o/o
Archangel		o/12/6 o/c/o
Turpentine		24/-/o o o/o

TENDERS.

[Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than* 10 *a.m. on Thursdays*. N.B.—We cannot publish Tenders unless authenticated by the name and address of the sender; and we cannot publish announcements of Tenders accepted unless the amount of the Tender is given, nor any list in which the lowest Tender is under £100, unless in some exceptional cases and for special reasons.]

BARNSLEY.—For the execution of street works, Agnes-road West, &c., for the Town Council. Mr. J. H. Taylor, C.E., Borough Surveyor, St. Mary's-place, Barnsley:—

For Blenheim-road.

H. Medley £164 10

For St. George's-road.

H. Medley £175

For Agnes-road West.

J. Hood £1,181 8

For Spring-street.

G. F. Brown £519 17 6

BOURNE (Lincs.).—For the erection of cattle market, for Messrs. Warwicks & Richardsons, Limited. Mr. F. G. Shilcock, architect, West-street, Bourne:—

F. Pattinson.....	£1,508 10 6	Chappell & Son, Bourne*	£1,150 0 0
Woolstain	1,179 0 0	Wright & Wall	1,094 10 6
Gelsthorpe & Son ..	1,171 4 0	* Accepted.	
Wadsley & Co.....	1,166 0 0		

BRIDGWATER.—For the supply of paving, roadstone, &c., for the Corporation. Mr. Francis Parr, Borough Surveyor, Bridgwater:—

Barham Bros., Bridgwater*	— —	Bradford & Sons..... Hard Stone Firms, Ltd.	— —

* Accepted at following prices, viz.:—

Kerbing.

4 in. by 12 in. per ft. run ..... 5d.
6 in. by 12 in. " " 6½
8 in. by 10 in. " " 6½
9 in. by 4 in. " " 4½

Channelling.

10 in. by 6 in. per ft. run ..... 5d.
12 in. by 4 in. " " 4½

Paving.

4 in. thick per ft. super ..... 5½d.

BRIDLINGTON QUAY.—For the erection of a villa residence, Vernon-street, for Mr. E. Rodes. Mr. J. Earnshaw, architect, Carlton House, Bridlington Quay:—

R. Bailey.....	£1,775 0	E. Wilson, Bridlington Quay*	£1,658 0
J. Hudson	1,698 10		

* Accepted.

BROADSTAIRS.—Accepted for drainage works for the Urban District Council of Broadstairs:—

G. Bell, Tottenham £16,573

BUCKNALL.—For the erection of pumping station buildings, &c., for Stoke Rural Dialtrict Counci. Mr. Larner Sugden, Surveyor to the Council, Niles Bank Chambers, Hanley, architect. Quantities by the architect:—

Jesse Cope.....£2,069 18 10		Moss & Son	£1,527 0 0
Walley & Wolliscroft	1,8 0 0 0	Sampson Salt	1,466 10 0
G. A. Foster.....	1,741 0 0	T. Godwin	1,413 19 6
T. Goodwin	1,560 0 0	James Moss	1,366 0 0
C. Cornes	1,559 0 0	J. Bagnall, Fenton*	1,275 14 2

* Accepted.

COLCHESTER.—Accepted for the erection of six cottages and shop, Ardleigh, for Mr. J. Fenn. Mr. P. M. Beaumont, architect, Maldon:—

A. Baxter, Maldon £1,438

DARTFORD.—Accepted for roads and sewers on the New Town Estate, Dartford, Kent:—

G. Bell, Tottenham £854

DARTFORD.—Accepted for sewer works for the Dartford District Council, Kent:—

G. Bell, Tottenham £737

GODALMING.—For making up, &c., Holloway Vale road and others, for the Town Council. Mr. S. Welman, Surveyor, Church-street, Godalming:—

G. Franks	£405	G. Horn, Godalming*	£365
Streeter Bros.	372	* Accepted.	

HESWALL-CUM-OLDFIELD.—For the execution of sewerage works, &c., for the Wirral Rural District Council. Mr. A. Hughes, surveyor, Birch-road, Bebington, Cheshire. Quantities by surveyor:—

J. Disley	£472 7	J. Barnes.....	£470 0
J. Taylor.....	445 0	J. Merritt	375 0
P. Gavan.....	425 0	J. Price, West Kirby* ..	299 10
C. J. Shaw & Co.....	419 0	* Accepted.	

ILFORD.—For pulling down and rebuilding "The Cauliflower" public-house, Ilford, for Mr. C. Reynolds. Messrs. Waterman & Lewis, architects, 7, Cullum-street, E.C.:—

Harris & Wardrop	£15,769	H. Knight & Son	£14,135
Dolman.....	15,383	W. Maddison	13,695
Kilby & Gayford	15,337	H. Hammond	13,207

LONDON.—Accepted for drainage work for the Ham Urban District Council, Surrey:—

G. Bell, Tottenham £6,195

LONDON.—Accepted for roads and sewers on the Freemasons Estate, Canning Town:—

G. Bell, Tottenham £1,029

LONDON.—Accepted for roads and sewers on the Oakfield Park Estate, Honor Oak:—

G. Bell, Tottenham £1,125

LONDON.—For the construction of stoneware pipe sewers, &c., for the Hendon Rural District Council. Mr. J. A. Webb, engineer, Memorial Institute, Great Stanmore, Middlesex:—

Pedrette & Co. £3,870	0 0	Lee	£2,506 0 0
Wilkinson Bros....	3,179 0 0	Bell	2,294 0 0
Hollingsworth.....	3,146 0 0	Jackson.	2,293 12 8
Bloomfield	2,765 0 0	G. R. Mann, High-Cliff Ford.....	2,528 0 0
		street, Edgware*..	2,087 4 10

* Accepted.

LONDON.—For alterations and additions at the "Beresford Arms," Beresford-street, Walworth, for Mr. J. W. Turnham. Messrs. Edward Brown & Son, architects, Cornwall-street Bishopsgate:—

Maxwell Bros., Lim.	£1,228 0 0	G. E. Todd & Co...	£1,133
W. Young	1,200 0 0	G. Newton	1,122 7 9
Trent Bros.....	1,179 0 0	J. V. Kiddle & Son..	1,070 0 0
S. Salt.....	1,163 0 0	Taperell & Davis* .	971 0 0

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Vaughan & Brown, Lim.* ..£120 | J. Steadman (too late) £117

Pewtering.

R. Davis & Sons ..... £76 | Grimes & Son*..... £62

* Accepted.

LONDON.—For the erection of ward blocks at workhouse, Northumberland-street, W., for St. Marylebone Union Guardians. Mr. A. Saxon Snell, architect, 22, Southampton-buildings, W.C. Quantities by Messrs. Northcroft, Son, & Neighbour:—

G. H. & A. Bywaters & Sons, Regent-street, W. (for completing within twelve months) £52,490

[Nine other tenders received.]

LONDON.—For alterations to the "Queen's Arms" public-house, Portland-street, Walworth, for Miss Maud Mills. Messrs. Lawson Bros., architects:—

W. Newstead	£482	Star & Sons	£448
H. Eames, Peckham*	449		

* Accepted.

LONDON.—Accepted for setting boilers and other works at "The Hotel," Holborn:—

C. Yates & Co. £350

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C. Yates & Co., Bow £350

LONDON.—Accepted for setting boilers and building boiler house, &c., at Messrs. Barnes & Co., Chemical Works, Hackney Wick:—

C. Yates & Co., Bow £295

LONDON.—For pulling down and rebuilding the "Three Jolly Butchers," Wood Green, N., for Mr. J. Webster. Mr. J. E. Pinder architect, Bridge House, South Tottenham, N.:—

Antill & Co.	£14,900	H. Knight & Son, Tottenham*	£13,166
Green & Smith	14,780		
Voller	14,578	Dearing & Son	12,980
Johnson & Co.	13,542		

* Accepted subject to modifications,

LONDON.—For pulling down and rebuilding "The White Hart," Mile End-road, E., for Messrs. Hoare & Co., Ltd. Messrs. Perry & Reed, architects, 9, John-street, Adelphi, W.C.:—

Patman & Fatheringham	£7,912	Clarke & Bracey	£7,489
Hall, Beddall, & Co.	7,643	Knight & Son	7,374
Dove Bros.	7,497	Perry & Co.	7,229

MICHELDEVER (Hants).—For the erection of billiard-room, stabling, &c., adjoining house, for the Right Hon. the Earl of Northbrook. Messrs. Pearce & Offer, architects, Bournemouth. Quantities by Messrs. Jennings & Goater, Bournemouth:—

E. Carter & Son	£808 0 0	Hutchings & Sons	£680 18 6
Fielder & Son	752 0 0	G. Hooker, Basingstoke*	672 15 0
Jenkins & Sons	716 0 0		
Miller & Sons	691 10 9		

* Accepted.

ORPINGTON.—For alterations and additions to be executed to "Fair Home," Orpington, Kent. Mr. St. Pierre Harris, architect, 8, Ironmonger-lane, E.C., and Orpington, Kent:—

E. R. Thorne	£223 10	Somerford & Son*	£185 0
W. Owen	194 12	T. D. Graby	185 0

* Accepted with additions.

PONDER'S END.—For pulling down and rebuilding "The Angler's Retreat" beer-house, Ponder's End, N., for Messrs. Whitbread & Co., Limited. Mr. A. Dixon, architect, The Brewery, Chiswell-street, E.C.:—

Godfrey & Son	£2,732	Fairhead & Son	£2,417
Porter	2,495	H. Knight & Son, Tottenham (accepted)	2,373
Bull	2,442		

SOUTH HEIGHTON (Sussex).—For the erection of a rectory house for the Bishop of the diocese of Chichester and the managers. Mr. Wm. Cooper, architect, 21, Havelock-road, Hastings. Quantities by the architect:—

J. Longley & Co.	£2,319	Kemp & Son	£1,950
M. Martin	2,025	Chapman & Cuff	1,940
F. G. Hatton	2,025	C. Morling	1,852
S. H. Berry	1,967	M. Woolger	1,650

SUTTON.—For the erection of private house in Albion-road, Sutton, Surrey. Mr. St. Pierre Harris, architect, 8, Ironmonger-lane, E.C., and Orpington, Kent:—

A. J. Thomas & Sons	£1,721 4	H. Somerford & Son	£1,574 0
Horrocks	1,625 0	T. W. Graty	1,543 0
E. Burnand	1,602 0	Porter*	1,487 0
Holt & Son	1,595 0		

* Accepted as modified.

SWANLEY.—For the erection of two villas at Swanley, Kent. Mr. St. Pierre Harris, architect, 8, Ironmonger-lane, E.C., and Orpington, Kent:—

Somerford & Son	£1,228	Stebbings & Pannett	£950
T. Knight	960	J. Lonsdale*	887

* Accepted after modification.

SWANLEY.—Accepted for the erection of six cottages at Hextable-road, Swanley, Kent. Mr. St. Pierre Harris, architect, 8, Ironmonger-lane, E.C., and Orpington, Kent:—

Stebbings & Pannett £1,138

SWANLEY.—Accepted for the erection of eight cottages at Swanley, Kent. Mr. St. Pierre Harris, architect, 8, Ironmonger-lane, E.C., and Orpington, Kent:—

Stebbings & Pannett £1,838 0 0

SWANLEY.—Accepted for the erection of six cottages at Swanley, Kent. Mr. St. Pierre Harris, architect, 8, Ironmonger-lane, E.C., and Orpington, Kent:—

Stebbings & Pannett £1,362 0 0

SWANLEY JUNCTION.—For the erection of a pair of villas on the Birchwood Park Estate. Mr. J. S. Brown, architect, 148, Brecknock-road, London, N.:—

Skinner	£2,632	Stebbings & Pannett	£1,915
Knight	1,920	Lonsdale	1,893

UPTON (Cheshire).—For the execution of sewerage works, for the Wirral Rural District Council:—

J. Disley	£431 2 0	J. Griffith	£283 10 0
T. Rowlands	375 0 0	P. Gavan	280 0 0
C. J. Shaw & Co.	358 19 0	J. Barnes	252 0 0
W. Pealin	322 13 4	J. Price	228 10 0
A. Harris	307 6 1	J. Merritt, Birkenhead (accepted)	208 16 6
J. Taylor	293 0 0		

WALTHAMSTOW.—Accepted for roads and sewers on estate at Higham Hill, Walthamstow:—

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WICKLOW.—For the erection of eighteen artisan's dwellings, Convent-road, Bayview, for the Town Commissioners. Mr. Thomas Little, architect, Rathdrum, co. Wicklow. Quantities by the late Mr. James Price, C.E., Dublin:—

J. Flynn ..... £97 10 per house
S. & J. Pim ..... 93 0 "

TO CORRESPONDENTS.

N. L. N. (Ineligible for insertion, as amount is not stated).—J. P. B., F. W. A. (Too late: next week).

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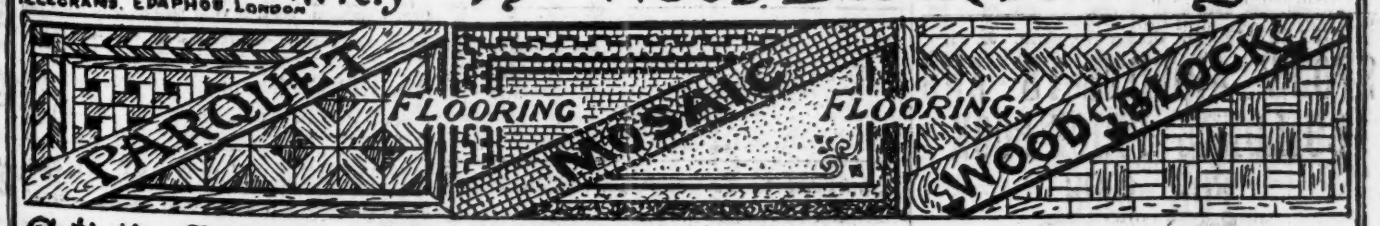

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[In Photo. Sprague & Co. 5 & 5 East Harding Street Fetter Lane, E.C.]

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STATUES AT THE SIDE OF THE BATH.

N.B.—The eight statues are all on the same scale, but owing to difficulty of access those at the side could only be photographed on a small scale.

INK-PHOTO. SPRAGUE & Cº LTD 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

STATUES ERECTED ABOVE THE ROMAN BATH AT BATH.—Mr. G. A. Lawson, Sculptor.

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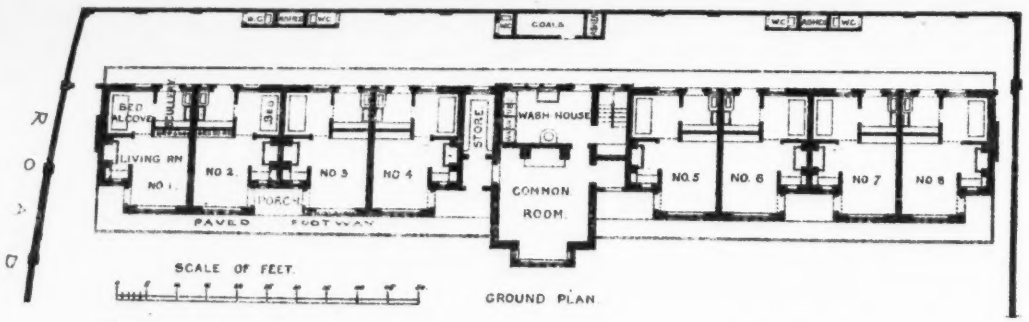
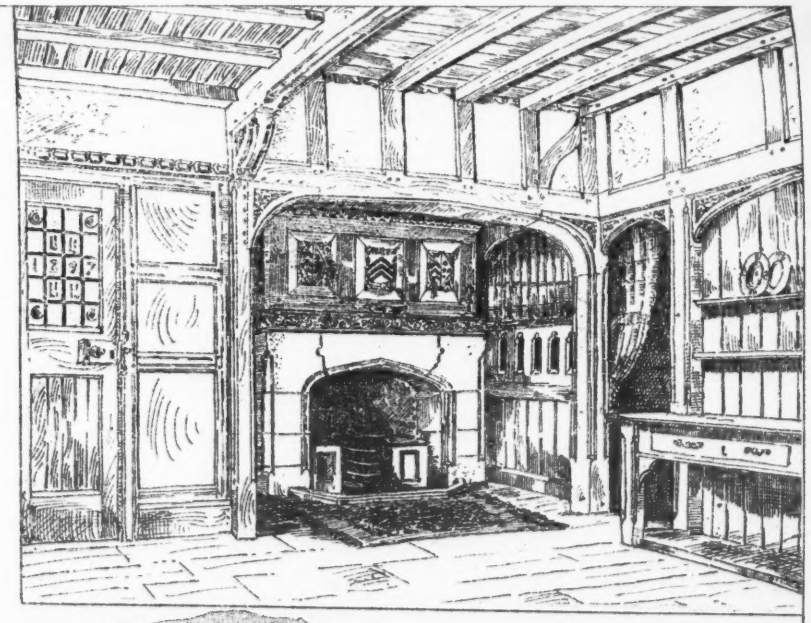
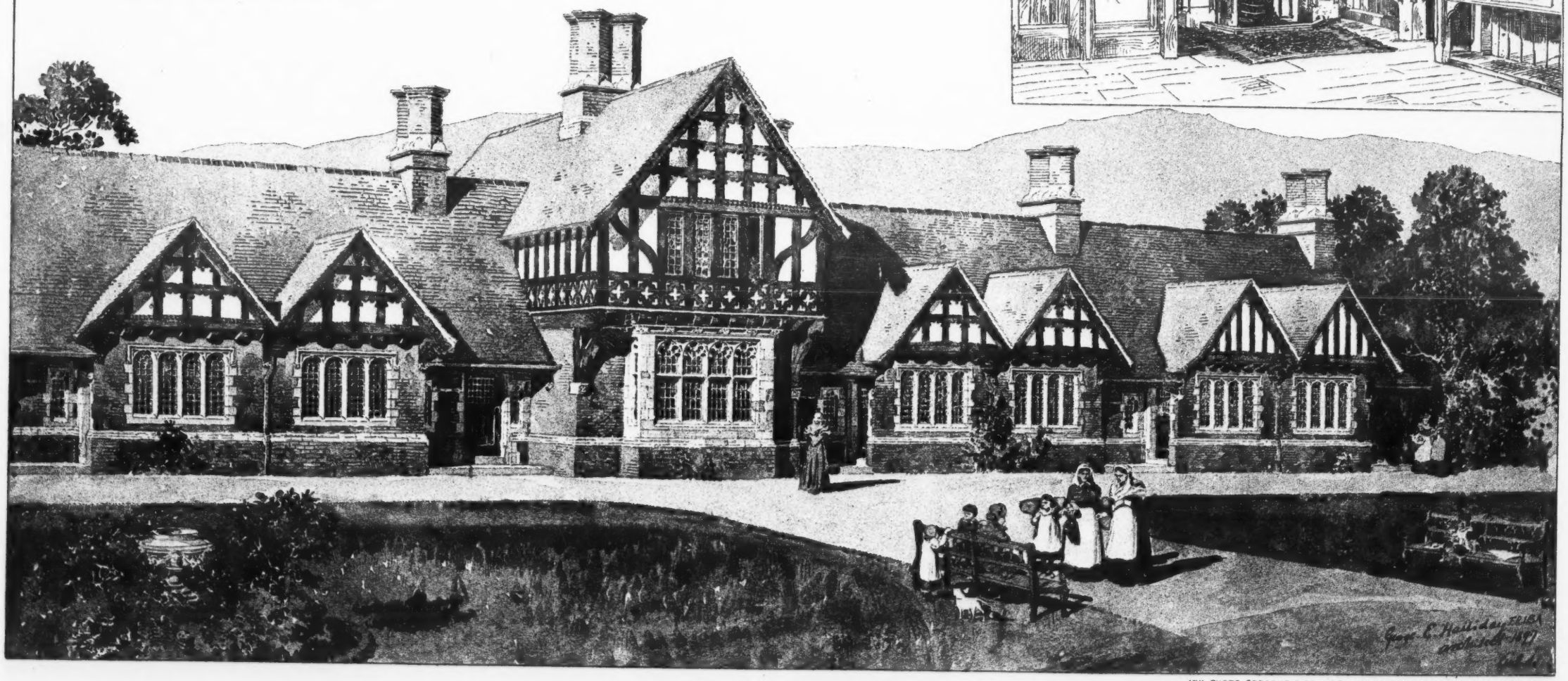


GROUND PLAN.

THE LLEWELLYN ALMS-HOUSES.
NEATH. GLAMORGAN.
GEORGE E. HALLIDAY, F.R.I.B.A. ARCHITECT.





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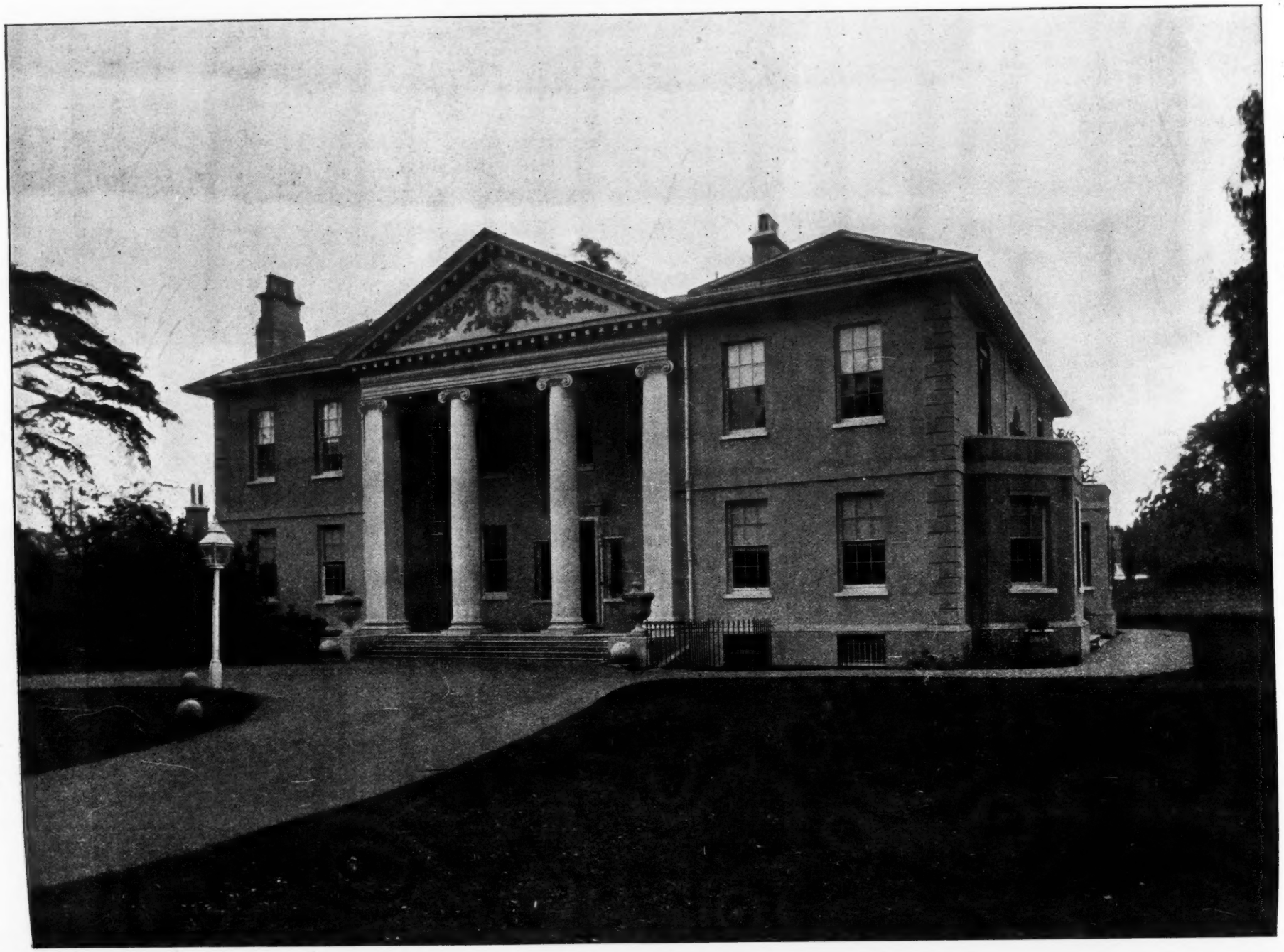

GROVE HOUSE, CHISWICK.

GROVE HOUSE, CHISWICK.

THE DINING-ROOM, GROVE HOUSE, CHISWICK.

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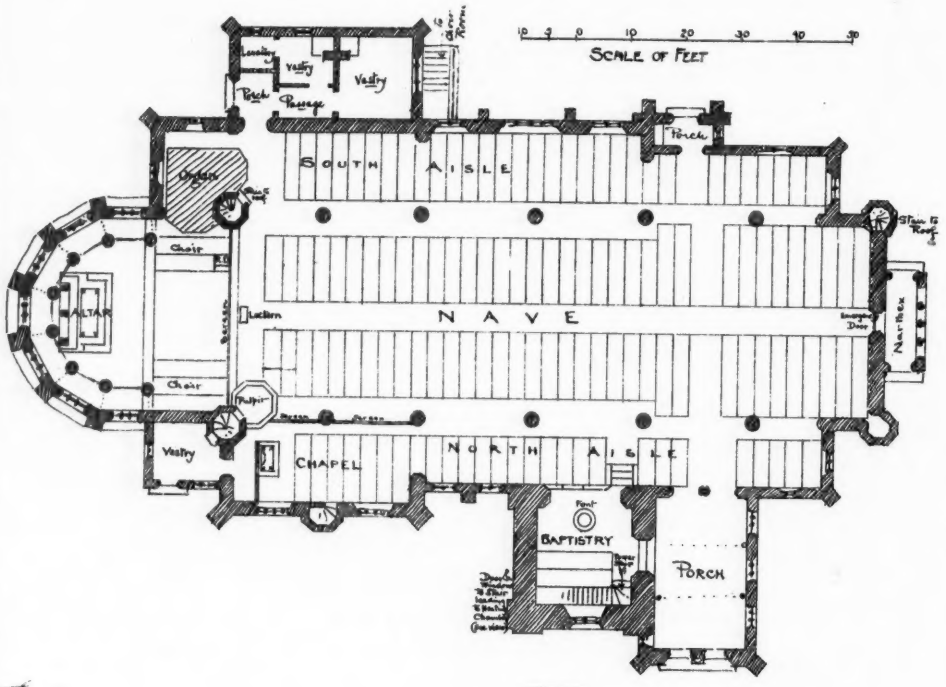
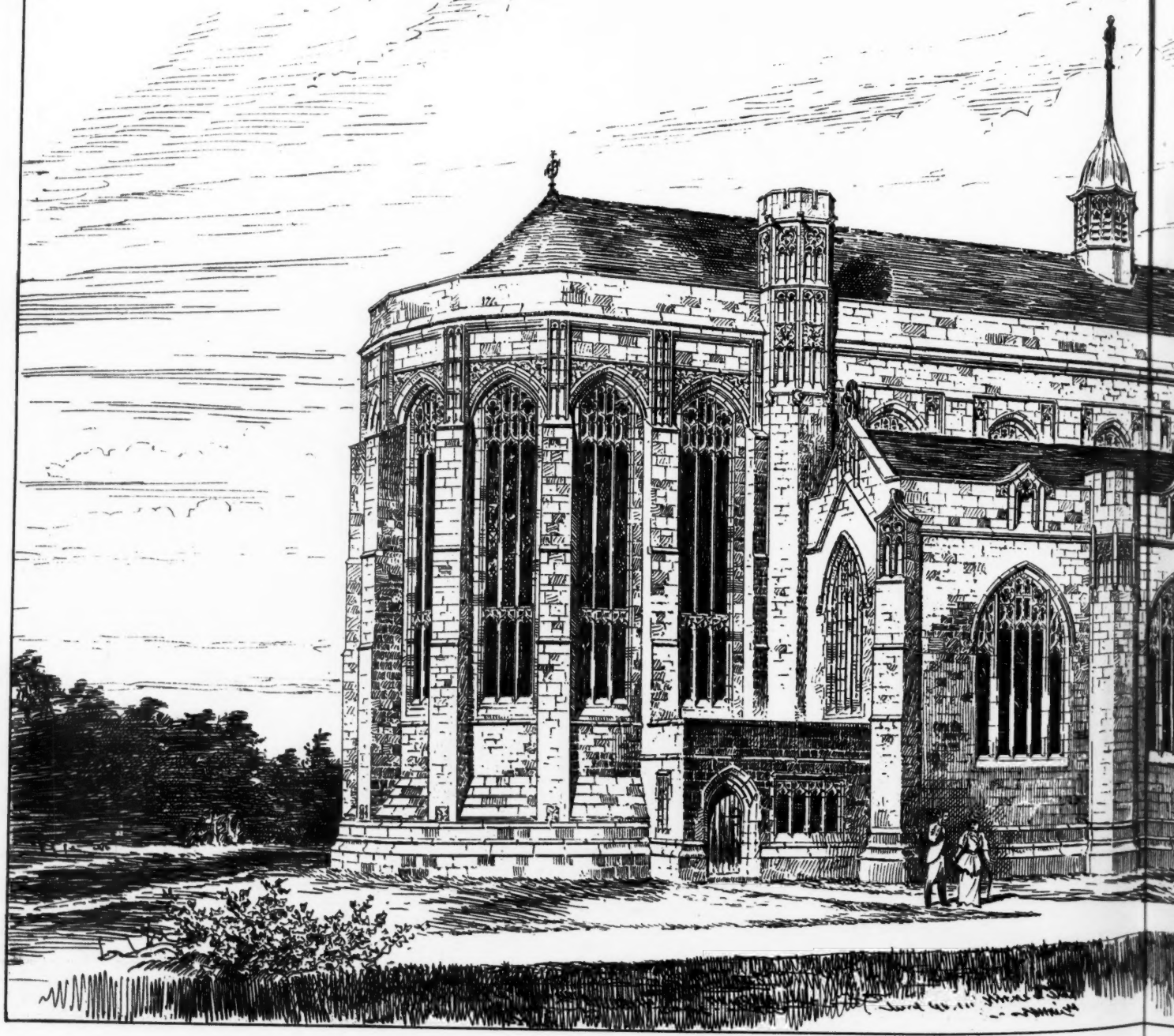
A Suburban Church





F.B. LAMB Architect.
31 Craven Street W.C.
August 1894.

E.B.L. fecit.

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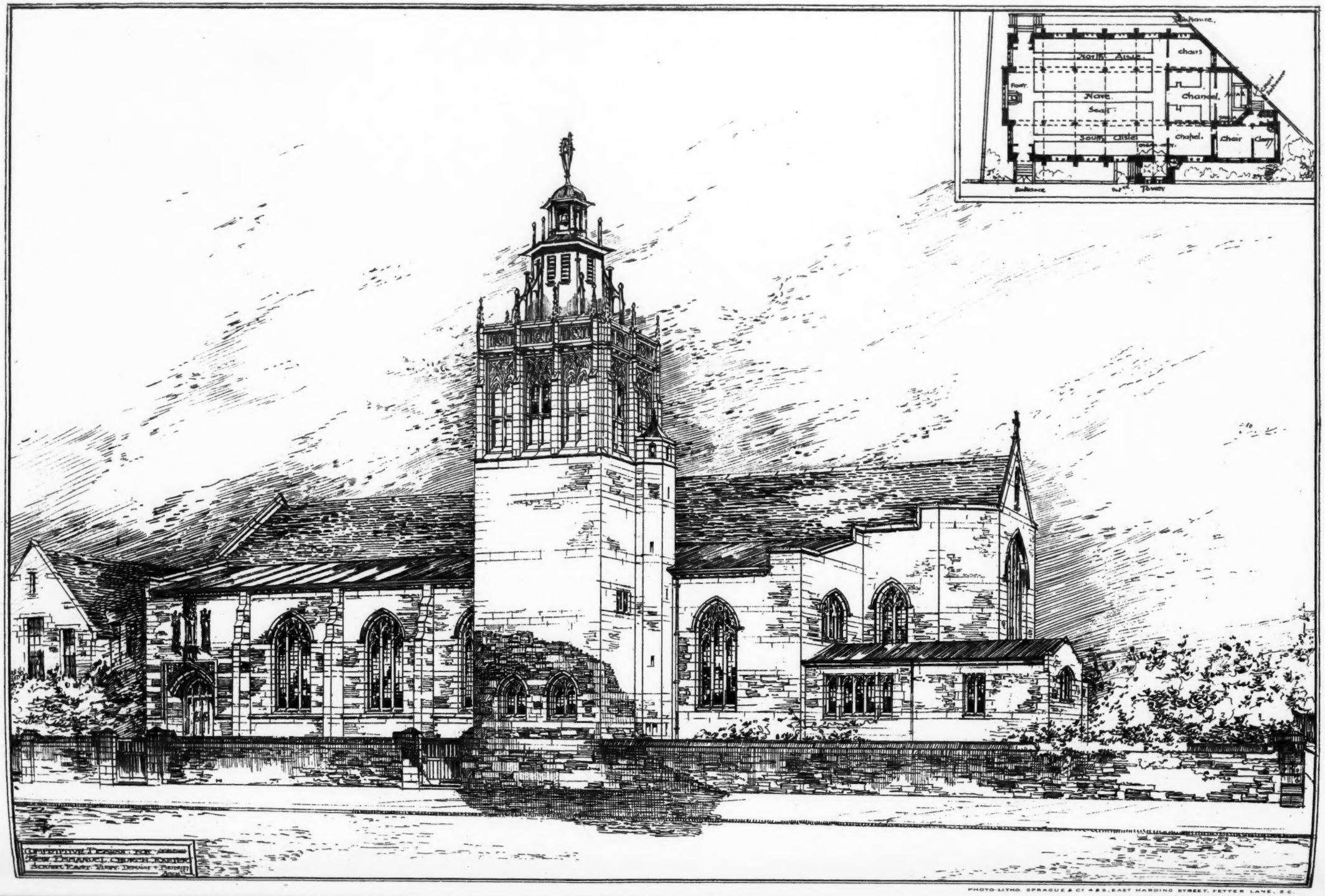

Competitive Design for the New Emanuel Church Exeter. South East View. Dennis + Bennett Archts

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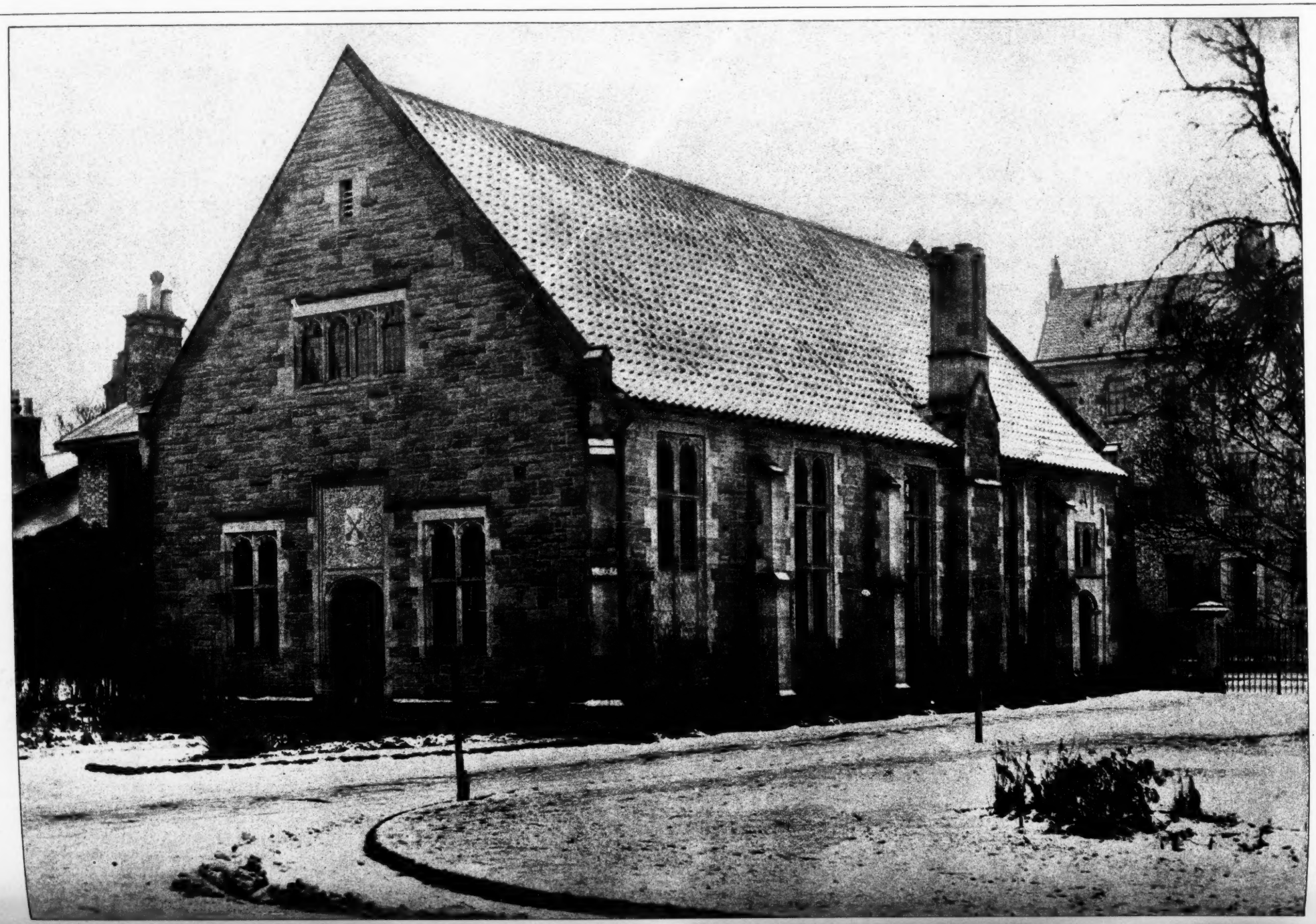
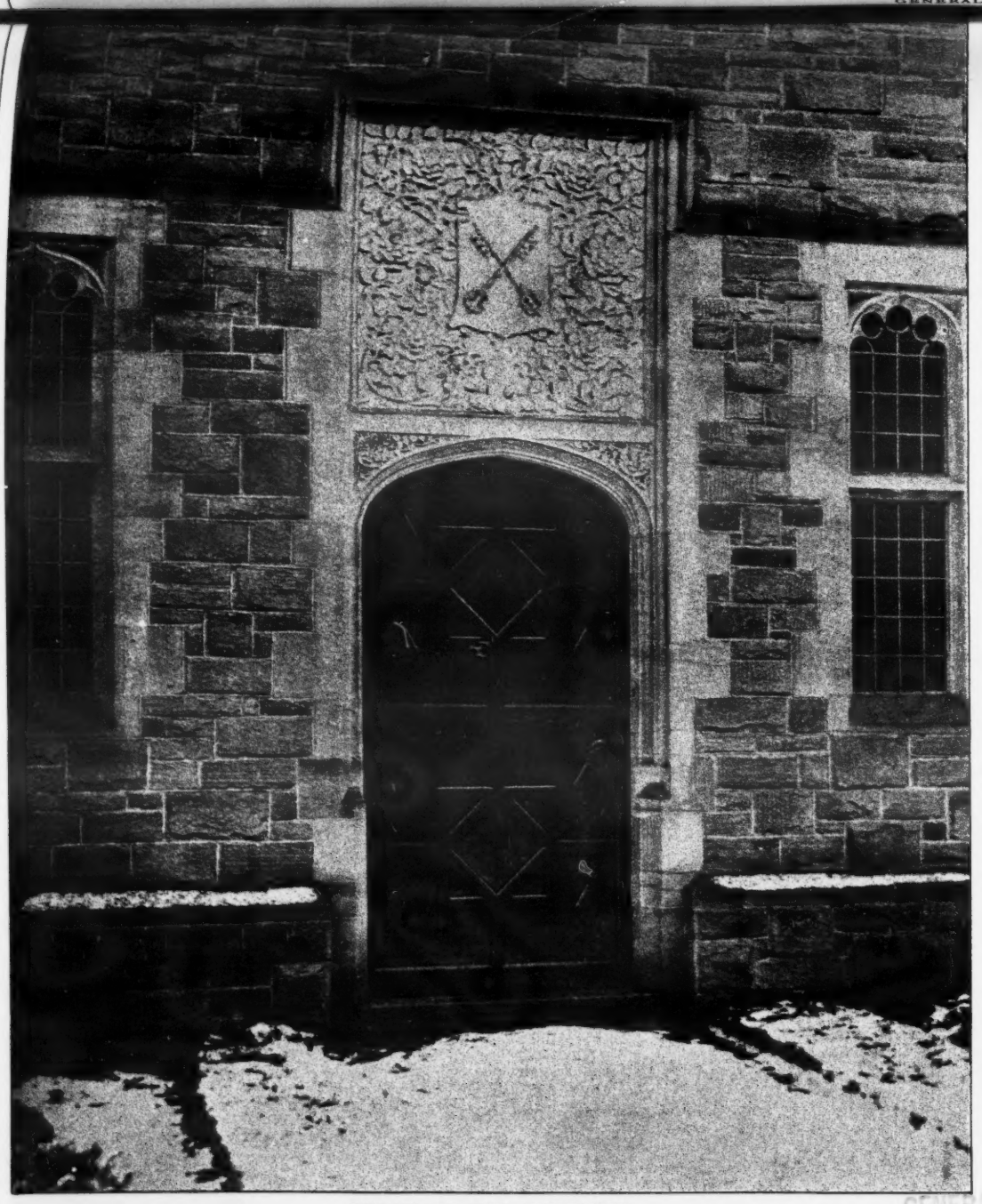


GENERAL VIEW.

GENERAL VIEW.



DETAIL OF END ENTRANCE.

DETAIL OF SIDE ENTRANCE.

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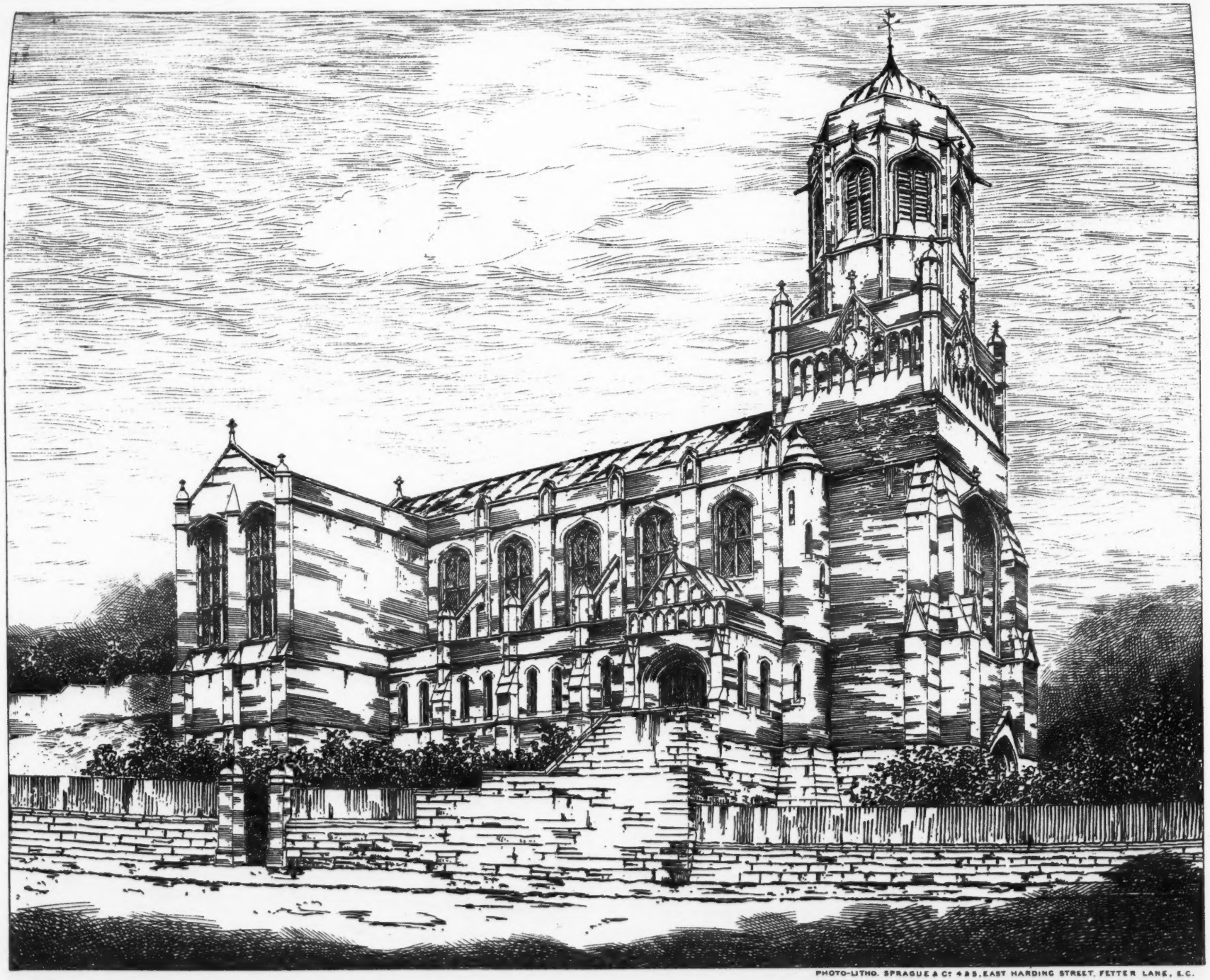
NEW GYMNASIUM, ST. PETER'S SCHOOL, YORK.—Mr. F. W. Bedford, A.R.I.B.A., Architect.



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CHURCH OF ST. SAVIOUR, ST. LEONARDS-ON-SEA.—Messrs. W. Hay Murray and J. D. Murray, Architects